

ENVIRONMENTAL ASSESSMENT

FOR

EDUCATION CENTER

Buckley Air Force Base, Colorado



Prepared by

Headquarters Air Force Center for Environmental Excellence
Project Execution Division

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14. ABSTRACT The United States Air Force (USAF) has prepared this EA in accordance with the National Environmental Policy Act to evaluate the potential environmental and social impacts from the construction and operation of the proposed Education Center. The EA considers the No Action Alternative and three action alternatives, including the Proposed Action, for the proposed Education Center. The proposed Education Center is required to support the 460th Air Base Wing mission and improve quality of life for on-site, off-site, and retired personnel. The environmental resources potentially affected by the proposed action and alternatives include: land use; socioeconomics; air quality; noise; soils; water resources; biological resources, including vegetation, wildlife, and threatened, endangered or other sensitive species; hazardous materials and waste; solid waste and pollution prevention; transportation; utilities; and environmental justice. Based on the nature of the activities that would occur during the construction and operation of the Education Center, the USAF has determined that minimal or no adverse impacts to the above resources are anticipated.					
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**FINDING OF NO SIGNIFICANT IMPACT
EDUCATION CENTER PROJECT
BUCKLEY AIR FORCE BASE, COLORADO**

AGENCY: United States Air Force, 460th Space Wing

BACKGROUND

The United States Air Force (USAF) conducted an Environmental Assessment (EA) of the potential environmental and social consequences of constructing and operating an Education Center at Buckley Air Force Base (AFB), pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §4321 to §4370d), Council of Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations Part 1500-1508), and the Air Force Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001). The EA is incorporated by reference herein.

PROPOSED ACTION

To support the mission requirements of the 460th Space Wing at Buckley AFB, the USAF proposes to construct and operate an Education Center that meets the requirements of Military Handbook 1190, "Facility Planning and Design Guide" and Section C, 15.3 – Category Code 730-441, Education Center in Air Force Handbook 32-1084 "Facilities Requirements." This project is part of the \$175 million, multi-year capital improvements program being implemented at the base to achieve the overall goal of turning a former Air National Guard Base into a fully functioning active duty AFB.

The Education Center will be a 19,606-square foot (1,821 square meter), single-story building that would allow BAFB to provide facilities adequate for the educational needs for professional military education, First Term Airmen's Center, Airman Leadership School, Lecture/Training Classrooms, and Off-duty Continuing Education/College Degree Programs. The Education Center will include space for administrative offices, a staff conference room, lecture classrooms, an auditorium with Video Teleconferencing and Video Teletraining (VTT) telecommunications capability, classrooms with VTT capability for distance and satellite learning, a learning resource center, staff/counselor offices, a break room, storage, and restrooms.

ALTERNATIVES CONSIDERED

In addition to the Proposed Action, a No-Action Alternative (as prescribed by CEQ regulations) and two action alternatives were considered and evaluated in the EA. Under the No Action Alternative, the Education Center would not be built, nor would the expanding mission at Buckley AFB be met. The USAF also evaluated two alternative sites at different locations on Buckley AFB for the Education Center.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS

Consideration of effects described in the EA and a finding that they are not significant is a necessary and critical part of this Finding of No Significant Impact (FONSI) as required by 40 CFR 1508.13. Significant criteria are defined in 40 CFR 1508.27 to consider direct, indirect, and cumulative impacts and the context and intensity of impacts. The potential impacts of constructing and operating the Education Center are analyzed in detail in the Affected Environment and Environmental Consequences section of the EA for the following resource areas and conditions: land use, socioeconomics, air quality, noise, soils, water resources, biological resources (including vegetation, wetlands, wildlife, and threatened, endangered and other sensitive species), hazardous materials and waste, solid waste and pollution

prevention, transportation, utilities, and environmental justice. The analyses indicated that implementing the proposed action would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Best management practices described in the EA and incorporated into the Proposed Action, including post-construction monitoring and documentation, are generally required of the proponent by laws, regulations, or USAF policies and are adopted by this decision.

PUBLIC INVOLVEMENT

NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989 require public review of the EA before approval of the FONSI and implementation of any Proposed Action. The Draft EA was made available for a 30-day federal, state, and local agency and public review and comment period through publication of a notice of availability in the 14 May 2006 edition of the *Denver Post* and in the 18 May 2006 edition of the *Aurora Sentinel*. Copies of the Draft EA and Draft FONSI were distributed to individuals on the project mailing list and to various federal, state, and local agencies. A hard copy of the Draft EA and Draft FONSI was made available for public review in libraries in Denver, Boulder, and Aurora, CO. The public comment period on the EA closed on 19 June 2006. The USAF received comments on the project from the Colorado Department of Public Health and Environment.

FINDING OF NO SIGNIFICANT IMPACT

Based on the requirements of NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989, I conclude the environmental effects of the Proposed Action are not significant and therefore, an environmental impact statement is not required for these projects and thus will not be prepared. The signing of this FONSI completes the USAF EIAP.

Approved:



DAVID W. ZIEGLER, Colonel, USAF
Commander

29 AUG 06
Date

**COVER SHEET
ENVIRONMENTAL ASSESSMENT
FOR EDUCATION CENTER
AT BUCKLEY AIR FORCE BASE, COLORADO**

**Prepared by
Headquarters Air Force Center for Environmental Excellence
Project Execution Division
Brooks Air Force Base, Texas 78235-5122**

a. **Responsible Agency:** U.S. Air Force, 460 Space Wing

b. **Proposed Action:** The proposed action analyzed in the Education Center Environmental Assessment (EA) is to construct and operate an Education Center at Buckley Air Force Base (AFB) planned for Fiscal Year 2008. This project is included in the \$175 million, multi-year capital improvements program at the base to achieve the overall goal of turning the former Air National Guard base into a fully functioning, active-duty Air Force base.

c. **Written comments and inquiries regarding this document should be directed to:** Mr. Bruce James, 460 CES/CEVP, 660 S. Aspen Street (Stop 86), Bldg. 1005, Room 254, Buckley AFB, Colorado 80011-9551; telephone (720) 845-7245; e-mail bruce.james@buckley.af.mil.

d. **Privacy Advisory:** Your comments on this EA are requested. Letters or other written or oral comments provided may be published in the Final EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meeting or hearings or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the name of individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

e. **Designation:** EA

f. **Abstract:** The United States Air Force (USAF) has prepared this EA in accordance with the National Environmental Policy Act to evaluate the potential environmental and social impacts from the construction and operation of the proposed Education Center. The EA considers the No Action Alternative and three action alternatives, including the Proposed Action, for the proposed Education Center. The proposed Education Center is required to support the 460th Air Base Wing mission and improve quality of life for on-site, off-site, and retired personnel.

The environmental resources potentially affected by the proposed action and alternatives include: land use; socioeconomics; air quality; noise; soils; water resources; biological resources, including vegetation, wildlife, and threatened, endangered or other sensitive species; hazardous materials and waste; solid waste and pollution prevention; transportation; utilities; and environmental justice. Based on the nature of the activities that would occur during the construction and operation of the Education Center, the USAF has determined that minimal or no adverse impacts to the above resources are anticipated.

g. **Comments must be received by:** June 19, 2006

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Acronyms

460 SW	460 Space Wing
ac	acre
ACAM	Air Conformity Analysis Model
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
ANG	Air National Guard
APCD	Air Pollution Control Division
AQCR	Air Quality Control Region
AST	aboveground storage tank
BMPs	best management practices
CAQCC	Colorado Air Quality Control Commission
CATM	Combined Arms Training and Maintenance
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CMU	concrete masonry unit
CO	carbon monoxide
cu ft	cubic feet
cu m	cubic meters
CWA	Clean Water Act
dB	decibel
DERP	Defense Environmental Restoration Program
DNL	day-night level
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act

Acronyms

FONSI	Finding of No Significant Impact
ft	foot or feet
ft ³	cubic feet
FTAC	First Term Airman's Center
FY	Fiscal Year
ha	hectare
HAP	Hazardous Air Pollutants
HAZMART	Hazardous Materials Pharmacy
HQ	Headquarters
HVAC	heating, ventilation, and air-conditioning
IRP	Installation Restoration Program
km	kilometers
m	meter
m ³	cubic meter
mi	miles
MBTA	Migratory Bird Treaty Act
MMRP	Military Munitions Response Program
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NLR	Noise Level Reduction
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
ODS	ozone depleting substances
P2	Pollution Prevention
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PM _{10/2.5}	particulate matter particles equal to or less than 10/2.5 microns
PME	Professional Military Education
ppm	parts per million
PSD	Prevention of Significant Deterioration
QRP	Qualified Recycling Program
ROI	region of influence
RTD	Regional Transportation District

Acronyms

sq ft	square foot/feet
SIP	State Implementation Plan
sq m	square meter
SO ₂	Sulfur dioxide
SO _x	Sulfur oxides
SPCC	Spill Prevention and Countermeasure Control
SW	Space Wing
SWPPP	Storm Water Pollution Prevention Plan
tpy	tons per year
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound
VTT	video teletraining
WWII	World War II

This chapter describes the purpose of and need for the Proposed Action at Buckley Air Force Base (AFB), provides summaries of the scope of the environmental review and the applicable regulatory requirements, and presents an overview of the organization of the document.

Federal agencies are required to consider the environmental consequences of proposed actions in the decision-making process under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §4321 to §4370d) and the Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Part 1500-1508). This Environmental Assessment (EA) for the proposed Education Center at Buckley AFB was prepared in accordance with NEPA and CEQ regulations. Additionally, this EA complies with the Air Force Environmental Impact Analysis Process (EIAP) for the proposed action as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001), which implements NEPA, CEQ regulations, and Department of Defense (DoD) Instruction 4715.9 (Environmental Planning and Analysis).

1.1 BACKGROUND

Buckley AFB occupies approximately 3,283 acres (ac) (1,328 hectares [ha]) adjacent to the city of Aurora, Arapahoe County, Colorado, within the Denver metropolitan area (Figure 1-1). The 460 Space Wing (460 SW) is the current host of the installation and their mission is to provide combatant commanders with superior global surveillance, worldwide missile warnings, homeland defense, and expeditionary forces. The installation houses diverse missions, military services, and components that include active-duty, National Guard, and Reserve personnel from the United States (U.S.) Air Force (USAF), Army, Navy, and Marine Corps to accomplish satellite support operations, fighter operations, installation support, and other important missions. Currently, there are approximately 4,200 active-duty personnel, approximately 2,300 Guard and reserve personnel, approximately 4,800 civilian employees, and approximately 2,600 contract employees at the base. In addition, Buckley AFB serves approximately 22,000 retirees and approximately 55,000 dependents and veterans (460 SW 2004).

Buckley AFB is transforming from a minimally developed and landscaped installation for weekend influxes of Reserve and Guard personnel into a fully developed active-duty AFB. The base must meet the needs of diverse military missions by providing facilities that satisfy different requirements while maintaining the look and feel of a singular, well planned military installation integrated into its natural environment (Buckley AFB 2005a).

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The USAF has prepared this EA to assess the environmental and social impacts resulting from the proposed action to construct and operate an Education Center planned for Fiscal Year (FY) 2008 at Buckley AFB (Figure 1-2). This project is included in the \$175-million, 5-year capital improvements program (CIP) at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB.

The purpose of this project is to provide sufficient space for educational programs at Buckley AFB. Educational operations are currently scattered in different locations within Buckley AFB. The Education Center is temporarily housed in Building 606, while the First Term Airman's Center (FTAC) and Leadership School are housed in the Center of Excellence building behind Panther Hall (the old fitness center). Current education activities are operating in approximately

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Figure 1-1 Regional Context Map for Buckley AFB

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Figure 1-2 General Location of the Proposed and Alternative Education Center

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8,955 square feet (sq ft) [832 square meters (sq m)] of existing facility space (URS 2005). Based on the requirements identified in Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements,” several planning processes have been conducted and have determined that 19,606 sq ft (1,821 sq m) of adequate space is needed for Buckley AFB to support their education mission. Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements” does require the use of existing facilities when possible, however, Buckley AFB does not have sufficient space in existing facilities to provide the additional 10,651 sq ft (989.5 sq m) considered necessary for educational programs.

Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements” also states that education centers shall make use of joint facilities. Therefore, given the requirement for additional space, this project is needed to provide a joint facility for education programs at Buckley AFB. The proposed Education Center would provide space for administrative offices and five functional groups: Professional Military Education (PME), First Term Airman’s Center (FTAC), Airmen’s Leadership School, Lecture/Classrooms, and Off-Duty Continuing Education/College Degree Programs.

1.2.1 Scope of the Environmental Assessment

The Draft EA will be made available for public and agency review and comment. After reviewing the analysis in this EA, a decision will be made as to whether to issue a Finding of No Significant Impact (FONSI) or to proceed with the development of an Environmental Impact Statement (EIS) to further analyze the potentially significant impacts resulting from implementation of the Proposed Action or alternatives.

1.2.2 Resources to be Analyzed in this EA

This EA addresses the potential impacts of the proposed action to land use; socioeconomics; air quality; noise; soils; water resources, including surface water and groundwater; biological resources, including vegetation, wetlands, wildlife, and threatened and endangered species; hazardous materials and wastes; solid waste and pollution prevention; transportation; utilities; and environmental justice.

1.2.3 Resources Eliminated from Detailed Analysis

The following environmental issues were initially considered, but were determined not to be relevant to the Proposed Action being considered. By utilizing standard measures such as avoidance and best management practices (BMPs), these resources would not be impacted by the Proposed Action. Consequently, these resources have been eliminated from detailed analysis.

- Floodplains – Executive Order (EO) 11988, “Floodplain Management,” requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The proposed project area and alternative sites have been located outside of the 100-year floodplain. Therefore, floodplain management was dismissed as an environmental issue.

- **Geology** – The USAF is required to protect significant geologic features. The proposed project areas and alternative sites would have little to no effect on the geology of the area. Therefore, geology was dismissed as an environmental issue.
- **Cultural Resources** – The National Historic Preservation Act, as amended (16 USC 470 et seq.) and NEPA require the consideration of impacts on cultural resources listed in or eligible for listing in the National Register of Historic Places. Buckley AFB does not anticipate that any historic structures or buildings, or archaeological sites, would be impacted by the proposed project (GeoMarine Inc. 2004). In a letter dated November 21, 2005 (Appendix C), the State Historic Preservation Officer concurred with the decision of no adverse impacts to cultural resources from the proposed project. Should any cultural resources be uncovered during construction of the Education Center, work would stop and the site would be evaluated prior to the continuation of the project. Therefore, cultural resources was dismissed as an environmental issue.
- **Visual Resources** – Because the base is zoned as industrial by the city of Aurora and the proposed project takes place within this industrial area, there would be no new impacts to visual or scenic resources. The community located adjacent to the southwestern portion of the base currently views structures located on base. Structures such as the radomes and new Wing Headquarters (HQ) are visible from this community. Construction of a new facility on the base boundary would not further degrade visual resources for this community. Minor, adverse, and short-term impacts could result from construction activities. Therefore, visual resources was dismissed as an environmental issue.
- **Air Space** – Because the proposed project would not involve any flying and/or flying missions, there would be no new impacts to air space. Therefore, air space was dismissed as an environmental issue.

1.3 APPLICABLE REGULATORY REQUIREMENTS

The EA is documentation of the EIAP and complies with NEPA, CEQ regulations, and DoD Instruction 4715.9. The EA addresses all applicable federal, state, and local laws and regulations, including but not limited to the Clean Air Act; Clean Water Act (CWA); Endangered Species Act (ESA); AF132-7040, Air Quality Compliance; EO 11990, Protection of Wetlands; Air Force Instruction (AFI) 32-7088, Pollution Prevention Program; AFI 32-7042, Solid and Hazardous Waste Compliance; EO 12898 Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations; EO 13045 Protection of Children from Environmental Health Risks and Safety Risks; Resource Conservation and Recovery Act; and the Comprehensive Environmental Response, Compensation, and Liability Act.

In accordance with National Pollutant Discharge Elimination System (NPDES) requirements, a project with a total area of disturbance equal to or greater than one acre requires a site-specific Stormwater Pollution Prevention Plan (SWPPP), including sediment and erosion control measures, be developed and implemented for construction activities. A Notice of Intent would be filed to obtain coverage under the United States Environmental Protection Agency (USEPA) Stormwater Construction General Permit.

In addition, other permits, activities, and notifications that would be needed prior to or after construction include:

- Fugitive dust permit should site grading activities exceed 6 months.
- CWA Section 404 Permit from the U.S. Army Corps of Engineers (USACE) should wetlands be impacted.
- Review and update inventory of stationary emission units as required by the Title V Operating Permit, Condition 9.1.
- Registration of air-conditioning equipment containing ozone-depleting substances (ODS) may be required if equipment has a total horsepower rating of 100 or greater. However, AFI 32-7086 requires that the USAF not develop or procure any new weapon or facility systems that are scheduled to remain in the USAF inventory beyond 01 January 2020 that require Class II ODS in their operations or maintenance.

1.4 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT

Pursuant to the EIAP implementing the CEQ regulations (40 CFR 1502), the EA will consist of the following sections:

Acronyms and Abbreviations: provides a list of acronyms and abbreviations used throughout the document.

Section 1 – Introduction: Purpose and Need for the Proposed Action: provides background information about the installation; the purpose and need for the Proposed Action; the scope of the environmental review; applicable regulatory requirements; and a brief description of how the document is organized.

Section 2 – Description of the Proposed Action and Alternatives: provides the selection criteria; a detailed description of the Proposed Action, other action alternatives, and the No Action Alternative; other alternatives that were considered but not carried forward in the evaluation process; and an alternatives comparison table.

Section 3 – Affected Environment and Environmental Consequences: provides a description of the existing conditions of the areas potentially affected by the alternatives identified to implement the Proposed Action; and an analysis of the direct and indirect impacts to resources from the alternatives.

Section 4 – Cumulative Impacts: provides an analysis of present and reasonably foreseeable projects, and the potential incremental impacts of the Proposed Action when considered along with these other planned or reasonably foreseeable projects.

Section 5 – List of Preparers: provides a list of the document preparers and contributors.

Section 6 – Distribution List and Agencies and Individuals Contacted: provides lists of agencies/individuals to whom the EA will be distributed and the agencies/individuals who were contacted for information in the preparation of this document.

Section 7 – References: provides a listing of the references used in preparing this EA.

Appendices: includes Air Force 813 Forms, Notice of Availability and Affidavit of Publication, Interagency Coordination Letters, and Comments and Responses to Comments.

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This chapter identifies selection criteria and provides a detailed description of the Proposed Action, two other action alternatives, and the No Action Alternative for construction of the Education Center. Alternatives that were considered but dismissed are also discussed. In addition, a comparison of how the alternatives meet the selection criteria for the project and a summary of impacts for each alternative are provided at the end of this chapter.

2.1 IDENTIFICATION OF SELECTION CRITERIA

The Buckley AFB General Plan was published in November 2002 (Buckley AFB 2005a) and updated in October 2005. The plan provides an overall blueprint for the transition from an Air National Guard (ANG) base to a fully functioning, active-duty AFB with many tenant organizations. The Buckley AFB General Plan advocates grouping similar facilities together, and antiterrorism constraints dictated siting some facilities a specified distance from the fence line.

The following are selection criteria developed to satisfy the purpose and need for the Proposed Action. Alternatives were developed based on how effectively they meet the selection criteria for the project.

Selection criteria for the project were determined using the Military Handbook 1190, “Facility Planning and Design Guide” and Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements.” Selection criteria for this project include the following:

1. Meets current Air Force operational, safety, and training standards per the referenced handbooks and guides.
2. Supports the mission of maintaining personnel qualification standards for the 460 SW and its tenant organizations.
3. Location within the Community Center area.
4. Compatibility with adjacent site uses.
5. Design constraints posed by height restrictions.
6. Location outside the Airfield Clear Zone.
7. Compatible with land use established in the Buckley AFB General Plan.
8. Avoids floodplains, wetlands, natural and cultural resources, and sites requiring environmental investigation and/or remediation.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The USAF proposes to construct and operate an Education Center to provide facilities adequate for the education needs for professional military education, FTAC, Airman Leadership School, Lecture/Training Classrooms, and Off-duty Continuing Education/College Degree Programs. Per Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements,” the new facility would include:

- Administrative office space

- Staff conference room
- Lecture classrooms
- Auditorium with Video Conferencing and Video Teletraining (VTT) telecommunications capability
- Classrooms with VTT capability for distance and satellite learning
- Learning resource center
- Staff/counselor offices
- Break room
- Storage
- Restrooms

As shown in Figure 2-1, the Proposed Action site is located west of the main base access road (Aspen Street) trending north-south, just north of A-Basin Avenue, and south of Breckenridge Street, in an open area east of the existing fuel farm, and southwest of Building 340, Motor Pool. The proposed structure is a 19,606 sq ft (1,821 sq m) single-story, steel framed structure with reinforced concrete foundation and slab, split-faced concrete masonry units (CMU) exterior walls and a standing seam, insulated metal roof. The temporary construction impacts (estimated to be six times the building square footage) would be 117,636 sq ft (10,928 sq m) or 2.7 ac (1.1 ha). With the inclusion of parking lots and sidewalks, it is estimated that the total permanent footprint of the facility would be approximately 62,360 sq ft (5,793 sq m) or 1.4 ac (0.58 ha). The facility would include utilities, parking, landscaping, access, site preparation, and telecommunications pre-wiring. Figure 2-2 shows a conceptual site plan of what the Education Center might look like.

The main entrance of the building would face south. The facility staff would be approximately 20 people. It is not expected that there will be an increase in personnel from the proposed project. During daily activities, as many as 100 people may be in the building at any one time. On special occasions, up to 200 personnel may be in the building. Overflow parking may need to be shared with the future chapel currently being constructed south of A-Basin Avenue.

The Education Center parking lots, located on the east and west sides of the facility, would accommodate 120 personnel and students, including eight handicapped spaces. Vehicles would access the Education Center from Aspen Street and proceed west on A-Basin Avenue to the new facility.

Public providers would supply water, natural gas, and electrical power. There is a separate project underway (Infrastructure Phase 3 Plan) that may provide new underground utilities along A-Basin Avenue that would provide utility services to the proposed building without the need for extending the existing system.

2.3 DESCRIPTION OF OTHER ACTION ALTERNATIVES

Two alternative construction sites were selected for evaluation for the construction of the Education Center in this EA (Figure 1-2). While the conceptual drawings and activities descriptions for the facility would remain the same, the alternatives are located at different sites

Figure 2-1 General Location of the Proposed and Alternative Education Center Sites

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Figure 2-2 Education Center Conceptual Site Plan

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across the base that meet the facilities siting criteria detailed in the Buckley AFB General Plan (Buckley AFB 2005a) and the selection criteria in Section 2.1 of this EA.

2.3.1 Alternative 1

Alternative 1 (Figure 1-2) is a vacant parcel of land located west of Aspen Street, south of Beaver Creek Street near Building 600, the Medical Facility. Water lines, electrical lines, and natural gas lines exist within the area under Aspen Street; these lines are located approximately 400 feet east of the project area.

2.3.2 Alternative 2

Alternative 2 (Figure 1-2) is a vacant parcel of land located west of Aspen Way and west of the new Wing HQ Building. Utilities are not present within the vicinity of the Alternative 2 location and would need to be distributed into the area (Buckley AFB 2005a). The closest utilities are water lines, electrical lines, and natural gas lines located under Aspen Street. These lines are located approximately 800 ft east of the project area. However, no sanitary sewer lines are within the area.

2.4 NO ACTION ALTERNATIVE

While the No Action Alternative does not satisfy the purpose and need for the project of consolidating base education functions into one facility, it is included in the environmental analysis to provide a baseline for comparison with the proposed action and is analyzed in accordance with CEQ regulations for implementing NEPA.

Under the No Action Alternative, the Education Center would not be built. Base education activities would continue to operate in substandard space totaling approximately 8,955 sq ft (832 sq m) (URS 2005). As there is not enough space within existing facilities to provide the additional 10,651 sq ft (989.5 sq m) considered necessary for educational programs, base education office personnel would work out of the existing substandard administrative space, and base personnel needing education and training would not have adequate space configured to modern-day practices for computer and telecommunication links. The No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need.

2.5 ALTERNATIVES CONSIDERED BUT DISMISSED

Other locations for the Education Center were investigated during the development of the Buckley AFB General Plan. The locations eliminated from consideration were either already planned for other development, were in areas not suitable for development (wetlands, floodplains, Installation Restoration Program [IRP] sites), or were not large enough to accommodate all education operations in one location. Location off base would not meet the requirement for education centers to be located in or very near major on-base enlisted housing areas, as identified in Section C, 15.3 – Category Code 730-441, Education Center” in Air Force Handbook 32-1084 “Facilities Requirements.”

2.6 COMPARISON OF ALTERNATIVES

Table 2-1 illustrates the Proposed Action, Alternatives 1 and 2, and the No Action Alternative as they relate to the selection criteria presented in Section 2.1.

Table 2-1
Comparison of Alternatives with Selection Criteria

Selection Criteria	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Meets current Air Force operational, safety, and training standards	YES	YES	YES	NO
Supports the mission of maintaining personnel qualification standards for the 460 SW and its tenant organizations	YES	YES	YES	NO
Location within the Community Center area	YES	NO	NO	NO
Compatible with adjacent site uses	YES	YES	YES	n/a
Design constraints posed by height restrictions	NO	NO	NO	n/a
Is not located in the Airfield Clear Zone	YES	YES	YES	n/a
Compatible with land use established in the Buckley AFB General Plan	YES	NO	NO	n/a
Avoids floodplains, wetlands, natural or cultural resources, and sites requiring environmental investigation and/or remediation	YES	YES	YES	YES

n/a: not applicable

Table 2-2 compares the impacts to resources analyzed in this EA for the Proposed Action, Alternatives 1 and 2, and the No Action Alternative for the project.

Table 2-2
Comparison of Alternatives with Resource Impacts

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Land Use	No adverse impacts, implementing the Proposed Action would be compatible with the future land uses of this area (Community Service) as identified in the Buckley AFB General Plan.	Adverse impacts to land use are expected because proposed land use changes are not compatible with the General Plan.	Adverse impacts to land use are expected because proposed land use changes are not compatible with the General Plan.	No adverse impacts expected.
Socioeconomics	No adverse impacts expected. Beneficial, short-term, direct socioeconomic impacts.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.
Air Quality	Minor, direct, short- and long-term impacts from fugitive dust and pollutants from vehicle and heavy equipment exhaust and emissions from building operations, and automobile emissions.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.

SECTION TWO

Description of Proposed Action and Alternatives

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Noise	Negligible short-term impacts due to construction activities.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.
Soils	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.
Water Resources: including surface water and groundwater	Negligible, long-term, adverse impacts to surface water due to the increase in impervious surfaces.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.
Biological Resources				
Vegetation	Negligible, direct, long-term adverse impacts from the permanent loss of approximately 1.4 ac (0.58 ha) of sparse, previously disturbed vegetation.	Minor, direct, long-term adverse impacts from the permanent loss of approximately 1.4 ac (0.58 ha) of mixed grass and shelterbelt vegetation.	Same as Alternative 1.	No adverse impacts expected.
Wetlands	No adverse impacts expected	No adverse impacts expected, provided proposed construction takes place outside of designated 50-ft wetland buffer. If proposed construction activities require dredging or filling of existing wetlands, a CWA Section 404 permit would be required and minor, direct, long-term adverse impacts could be expected.	No adverse impacts expected.	No adverse impacts expected.
Wildlife	Direct, minor, short- and long-term construction impacts expected.	Direct, and indirect; minor to moderate, short- and long-term construction impacts expected.	Direct, moderate, short- and long-term and direct construction impacts.	No adverse impacts expected.

SECTION TWO**Description of Proposed Action and Alternatives**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Threatened, Endangered, and Other Sensitive Species	No direct impacts are expected to prairie dogs. No expected impacts to burrowing owls.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.4 ac (0.58 ha) of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.4 ac (0.58 ha) of potential habitat.	No adverse impacts expected.
Hazardous Materials and Waste	Potential long-term adverse impacts from radon in the soil ; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impacts from radon in the soil ; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impacts from radon in the soil. Potential remedial activities at the Former Skeet Range.	No adverse impacts expected.
Solid Waste	Negligible short-term impacts due to solid waste generation during construction activities.	Same as Proposed Action..	Same as Proposed Action.	No adverse impacts expected.
Pollution Prevention	No significant changes to P2 expected once construction is complete.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.
Transportation	Minimal to moderate, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Minimal, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Minimal, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	No adverse impacts expected.
Utilities	Negligible adverse impacts expected.	Minimal adverse impacts expected from the extension of utility lines approximately 400 feet.	Minor adverse impacts expected from the extension of utility lines approximately 800 feet.	No adverse impacts expected.
Environmental Justice	No disproportionately high or adverse impacts on minority or low-income populations of all ages expected.	Same as Proposed Action.	Same as Proposed Action.	No adverse impacts expected.

SECTION THREE Affected Environment and Environmental Consequences

3.1 METHODOLOGY FOR ASSESSMENT IMPACTS

This section describes the affected environment (existing conditions) for land use; socioeconomics; air quality; noise; soils; water resources; biological resources including vegetation, wetlands, wildlife, and threatened and endangered species; hazardous materials and waste; solid waste pollution prevention; transportation; utilities; and environmental justice, as well as the potential impacts resulting from the implementation of the Proposed Action.

Potential impacts were identified and assessed for each environmental issue by comparing against existing conditions, which is the No Action Alternative. Impact areas utilized throughout this section were derived from the following calculations. The temporary construction impacts (estimated to be six times the building square footage) would be 117,636 sq ft (10,928 sq m) or 2.7 ac (1.1 ha). With the inclusion of parking lots and sidewalks, it is estimated that the total permanent footprint of the facility would be approximately 62,360 sq ft (5,793 sq m) or 1.4 ac (0.58 ha).

Impacts were assessed by comparison of the footprint for the proposed project and its alternatives to the biological resources described under the Affected Environment section for each resource. Impacts are described by intensity (minor/moderate), timing (construction vs. operation), mode of action (direct/indirect), and duration of impact (short-term/long-term), where applicable.

3.2 LAND USE

This section describes existing land use on the base and presents information pertaining to the proposed project and its impact or change, if any, on land use. The region of influence (ROI) considered for land use was limited to the Buckley AFB boundaries.

3.2.1 Affected Environment

Buckley AFB occupies approximately 3,283 ac (1,328 ha) adjacent to the city of Aurora, Arapahoe County, Colorado, within the Denver metropolitan area. Developed areas, including residential development and the Airport Boulevard Gateway Area (a growing business hub), border the base to the west and northwest. Land uses bordering the base to the east include light industrial land uses. Residential areas border the base on the southwest side. The East Toll Gate Creek 100-year floodplain borders the base to the southwest and provides a buffer between the developed areas and the installation boundary. A Regional Park and Open Space designation are proposed for areas immediately south of the installation (Buckley AFB 2005a).

Areas within Buckley AFB are primarily industrial and include the large radomes located within the northwest portion of the base. Generally, land use on the base currently includes National Guard and Reserve facilities to the east of Aspen Street, and active-duty facilities to the west (Buckley AFB 2005a). Land uses within Buckley AFB are primarily divided into fourteen categories (Administrative, Aircraft Operations and Maintenance, Airfield, Airfield Pavements, Community Commercial, Community Service, Housing-Accompanied, Housing-Unaccompanied, Industrial, Medical, Mission Operations and Maintenance, Open Space, Outdoor Recreation, and Water). The land use categories were developed to prevent

SECTION THREE Affected Environment and Environmental Consequences

incompatible siting of facilities and/or operations (Figure 3-1). Future land use designations were developed to assist with future projects occurring on base (Figure 3-2).

The proposed Education Center would consist of a 19,606 sq ft (1,821 sq m) single-story structure. The Education Center would contribute to the Community Center part of the base, providing convenient access to the other community facilities located within Buckley AFB. With the inclusion of associated parking areas and landscaping, the Education Center is expected to permanently convert approximately 1.4 ac (0.58 ha) of land within the base.

Proposed Action

The Education Center would be located in the western portion of the base in an area that is currently an open field with an existing land use of Industrial and a proposed future land use of Community Service (see Figure 3-2; Buckley AFB 2005a).

Land uses surrounding the Proposed Action location are designated as Community Service and are expected to include other community facilities such as the Chapel, Youth Center, and Child Development Center. To the north of the Proposed Action is Building 340, the Motor Pool, which is planned to be remodeled into a Skills Development Center. To the east is vacant land where the Consolidated Services Facility is proposed to be built. To the west of the facility, construction is currently underway for the Child Development Center. To the south is A-Basin Avenue trending east-west followed by the Chapel whose construction is scheduled to be completed by December 2005.

No Action Alternative

Existing land uses would continue until they are altered or replaced by other land uses in response to base expansion.

Alternative 1

The Alternative 1 site is a vacant, undeveloped parcel of land located west of Aspen Street and south of Beaver Creek Street near Building 600, the Medical Facility. The site is currently designated as Open Space, with a proposed future land use of Open Space (see Figure 3-2).

Alternative 2

Under Alternative 2, the Education Center would be located on a vacant parcel of land west of Aspen Way and northwest of the new Wing HQ Building. The site would be located within an area that is currently designated as Open Space, with a proposed future land use designation of Open Space (see Figure 3-2).

SECTION THREE **Affected Environment and Environmental Consequences**

Figure 3-1 Existing Land Use

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SECTION THREE **Affected Environment and Environmental Consequences**

Figure 3-2 Future Land Use

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SECTION THREE **Affected Environment and Environmental Consequences**

3.2.2 Impacts

The primary issues and concerns related to land use include the ability of Buckley AFB to continue to perform its mission while maintaining the viability of the land uses at and adjacent to the base. Also of concern are the health, safety, and welfare of persons using land adjacent to Buckley AFB.

Potential impacts to land use from the Proposed Action or action alternatives would include:

- Land use changes on base that would conflict with community land use plans or zoning
- Land uses conflicts on base that are considered incompatible with the Buckley AFB General Plan
- Land use changes on base that would impact communities (i.e., residential, business) that are located off base, adjacent to Buckley AFB

Since activities under the Proposed Action and action alternatives would occur within base boundaries, no off-base impacts to land use are expected to occur as a result of the Proposed Action or action alternatives.

Proposed Action

Direct impacts of the Proposed Action would include the conversion of approximately 1.4 ac (0.58 ha) of land currently designated Industrial to land developed and utilized for Community Service purposes (Buckley AFB 2005a). However, implementing the Proposed Action would be compatible with the future land uses of this area (Community Service) as identified in the Buckley AFB General Plan (see Figure 3-2). Therefore, no on-base impacts are expected as a result of the Proposed Action.

No Action Alternative

No direct impacts to land use types as a result of the No Action Alternative are anticipated.

Alternative 1

Direct, adverse impacts would include the conversion of approximately 1.4 ac (0.58 ha) of undeveloped land that has future designation as Open Space to be developed and utilized for Community Service. Adverse impacts to land use are expected since the land use designation for Alternative 1 would be incompatible with the Buckley AFB General Plan (Buckley AFB 2005a).

Alternative 2

Direct, adverse impacts would include the conversion of approximately 1.4 ac (0.58 ha) of undeveloped land designated for future land use as Open Space to Community Service (Figure 3-2). Therefore, adverse impacts to land use are expected since the land use designation for Alternative 2 would be incompatible with the land uses identified in the Buckley AFB General Plan (Buckley AFB 2005a).

SECTION THREE Affected Environment and Environmental Consequences

3.3 SOCIOECONOMICS

The socioeconomics section discusses and provides a full disclosure of economic conditions within and adjacent to the project area. Census data and other sources were used to derive data about base and surrounding populations, local employment and payroll, and other socioeconomic indicators.

3.3.1 Affected Environment

Buckley AFB is located approximately 8 miles (mi) [12.8 kilometers (km)] east of Denver, Colorado, within the city of Aurora, in Arapahoe County. Buckley population statistics were previously discussed in Section 1.1. The ROI included Buckley AFB and areas immediately adjacent to the base.

According to the 2003 Economic Impact Analysis performed at Buckley AFB, Buckley generates an annual payroll of \$490,092,390, comprised of \$228,175,272 for military payroll; \$81,214,065 for civilian payroll; and \$180,703,053 for non-appropriated funds, contract civilians, and private business. Approximately 5,741 indirect jobs were created at Buckley AFB in 2003, with an estimated annual dollar value of \$241,885,553. The total estimated annual economic impact from Buckley is \$1.2 billion (460 Space Wing 2004)

Between 1990 and 2000, median income in Arapahoe County increased by 40 percent, and personal income showed an increase of 124 percent. Per capita personal income showed an increase from \$9,370 to \$28,147. Non-farm and farm personal income increased 124 percent to approximately \$21.6 billion, and 447 percent to approximately \$1.7 million, respectively, in 2000. The categories with the highest percent increase in earnings between 1990 and 2000 were state government (325 percent); transportation and public utilities (297 percent); finance, insurance, and real estate (264 percent); and agricultural services (211 percent). The mining industry lost earnings (-19.1 percent) between 1990 and 2000 (Buckley AFB 2004a).

Total full-time and part-time employment increased 62 percent to 389,723 jobs in Arapahoe County between 1990 and 2000. The largest percentage employment gains between 1990 and 2000 were in construction (163 percent); transportation and public utilities (130 percent); state government (123 percent); and agricultural services (108 percent). Job loss was reported for mining (-41 percent) and farms (-15 percent) (Buckley AFB 2004a).

3.3.2 Impacts

This section addresses socioeconomic impacts that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue. This information is provided to allow an assessment of the comparative costs and economic benefits of the Proposed Action and its alternatives.

The number of staff present at the Education Center would fluctuate based on daily activities and special occasions.

SECTION THREE Affected Environment and Environmental Consequences

Proposed Action

The Proposed Action would not result in any additional base employees. The personnel needed to support the facility would come from an existing facility in which they are sharing or have inadequate space. Therefore, the increased number of personnel at Buckley AFB resulting from the Proposed Action is not expected to impact the local workforce, population, or housing.

Construction costs associated with the Proposed Action would have a direct, beneficial impact on the local economy (Buckley AFB 2004a). Construction workers for the Proposed Action would be drawn primarily from the existing local workforce or outside contractors, resulting in beneficial, short-term, direct effects on the local economy. However, it is expected that no new hiring of construction workers would occur due to existing workers within local companies being utilized. Construction employment workforces would be concentrated within the local area, thereby reducing the probability of a change in population growth based on the construction of the facility.

No Action Alternative

The No Action Alternative would not provide work for local construction workers and would therefore not generate additional revenue for the local economy. However, because additional construction workers would probably not have been hired specifically for the project and would be used on construction projects elsewhere, there would be no adverse impacts from the No Action Alternative.

Alternative 1

Impacts at the Alternative 1 location for the Education Center would be the same as the Proposed Action.

Alternative 2

Impacts at the Alternative 2 location for the Education Center would be the same as the Proposed Action.

3.4 AIR QUALITY

3.4.1 Affected Environment

Buckley AFB is located in Arapahoe County, Colorado, within the Metropolitan Denver Air Quality Control Region (AQCR). Given the regional nature of air quality, the ROI for this resource is the entire Denver AQCR. The Denver AQCR is currently designated attainment/maintenance for carbon monoxide (CO), the 1-hour ozone standard, sulfur oxides (SO_x), and particulate matter with a diameter of 10 micrometers or less (PM₁₀) (Colorado Air Quality Control Commission [CAQCC] 2001a, 2001b, 2003; CDPHE 2004). The Denver metropolitan area exceeded both the 1-hour and the 8-hour ozone standards during the summer of 2003.

SECTION THREE Affected Environment and Environmental Consequences

The region has entered into an Ozone Early Action Compact with USEPA and has committed to an extensive ozone modeling effort and early implementation of control measures as needed to ensure attainment of the 8-hour ozone standard by December 2007 (CAQCC 2004). The Denver AQCR is designated attainment under the new National Ambient Air Quality Standards (NAAQS) for particulate matter 2.5 microns or less in diameter (PM_{2.5}) (USEPA 2004) so the area would not be affected by this standard.

Buckley AFB is a major source of criteria pollutants under the Title V program because it has the potential to emit more than 100 tons of the criteria pollutants, SO₂ and oxides of nitrogen (NO_x). Buckley AFB is a minor source of CO, volatile organic compounds (VOC), and PM₁₀ under the Prevention of Significant Deterioration (PSD) provisions, with a potential to emit of less than 250 tons per year (tpy) of these pollutants. Buckley AFB is a PSD synthetic minor source of NO_x and SO₂ because the base accepted permit limits that establish the potential to emit for these pollutants at less than 250 tons per year (Jensen 2002). Buckley AFB's Title V Operating Permit Number 950PAR118 was originally issued on 28 August 1997, renewed on 1 July 2002, revised on 1 November 2005, and expires on 30 June 2007 (CDPHE 2005).

The Title V permit documents stationary sources of regulated emissions at Buckley AFB, including natural gas-fired boilers; furnaces and heaters; dual fuel-fired boilers (capable of firing natural gas or number 2 oil); diesel-fired generators; gasoline-fired arresting barrier engines; fuel storage tanks; and degreasers. Combustion sources can emit CO, NO_x, lead, sulfur oxides (SO_x), PM₁₀, and VOCs, while storage tanks and degreasing stations can emit VOCs.

The Title V operating permit requires Buckley AFB to review and update the inventory of all the stationary emission units at the end of each calendar year and calculate the total of criteria pollutant and Hazardous Air Pollutants (HAP) emissions. The Air Emissions Inventory summary for Buckley AFB for Mobile and Stationary sources is presented in Table 3-1.

Table 3-1
Buckley AFB Mobile and Stationary Air Emissions Inventory

Pollutant Emission Sources	CO (tpy)	VOC (tpy)	SO _x (tpy)	NO _x (tpy)	PM ₁₀ (tpy)
Buckley AFB 2003 Mobile Emissions ⁽¹⁾	204.5	56.9	2.1	40.6	5.0
Buckley AFB 2004 Point and Fugitive Stationary Source Emissions ⁽²⁾	22.4	28.1	1.7	63.1	5.5
Total Buckley AFB Emissions	226.9	85.1	3.8	103.7	10.5
AQCR 36 Emission Inventory ⁽³⁾	678,170	167,900	69,350	112,785	32,156
Conformity Rule De Minimus Threshold ⁽⁴⁾	100	100	100	100	100
10 percent of AQCR 36 Emission Inventory (Significant Threshold Values)	67,817	16,790	6,935	11,278	3,215

(1) Source: URS Group Inc., 2004. Mobile emission inventories are not conducted annually.

(2) Source: Golder Associates, 2005. Air Emissions Inventory, Buckley AFB CY 2004.

(3) Colorado Air Quality Control Commission (CAQCC), 2003 (CO – 2006 Interim Year Inventory), 2001a, (VOC and NO_x 2006 Inventory), and 2001b. (PM₁₀ and SO_x 2005 Maintenance Inventory)

(4) 40 CFR 93.153(b) - These limits are applicable to non-attainment and maintenance areas, and therefore, apply to Buckley AFB.
tpy= tons per year

SECTION THREE Affected Environment and Environmental Consequences

The Title V permit also requires Buckley AFB to comply with Colorado State Regulation No 15. This regulates Ozone Depleting Substances (ODS) contained in refrigeration equipment and air-conditioning units for climate control. These substances would need to be properly managed to minimize releases to the atmosphere.

Mobile sources are not regulated under the Clean Air Act, Title V operating permit, or the Colorado operating permit program, but are considerable components of total base emissions. Mobile sources at Buckley AFB include on- and off-road vehicles and equipment, some aerospace ground equipment, and aircraft operations. Emissions from mobile sources include CO, NO_x, lead, SO_x, PM₁₀, and VOCs.

3.4.2 Impacts

Impacts to air quality were evaluated with respect to the PSD and general conformity regulations (40 CFR Part 51 and 40 CFR Part 93 Subpart B respectively) and Buckley AFB's Title V Permit. The general conformity regulations apply to any federal action that takes place within an area designated as non-attainment or maintenance for criteria pollutants. The General Conformity Rule does not apply to actions that are not considered regionally significant and where the total direct and indirect emissions of non-attainment criteria pollutants do not equal or exceed *de minimis* threshold levels for criteria pollutants established in 40 CFR 93.153(b). A federal action is considered regionally significant when its total emissions equal or exceed 10 percent of the non-attainment area's emissions inventory for any criteria air pollutant. If a federal action meets *de minimis* requirements and is not considered a regionally significant action, then it does not have to undergo a full conformity determination (Buckley AFB 2004a). However, if emissions exceed the *de minimis* levels or are regionally significant, the USEPA provides several methods to determine if an action conforms to an implementation plan, including: (1) ensuring that emissions from the project are specifically included in the State Emissions Budget; (2) providing emission offsets; and/or (3) conducting air quality modeling. A federal agency can use one or any combination of the methods to show positive conformity (40 CFR 93.158).

Proposed Action

The Proposed Action would affect air quality in three ways: (1) the construction activities would produce fugitive dust and pollutants from vehicle and heavy equipment exhaust; (2) the operation of new buildings and facilities would increase emissions from furnaces, hot water heaters, and tanks used to store fuels for these sources; and (3) increased traffic associated with use of new facilities would cause automobile emissions. In addition, ODS contained in air-conditioning units for climate control would need to be properly managed to prevent releases to the atmosphere. These emissions would be considered direct impacts, as they would occur at the same time and place as the Proposed Action (e.g., point of emission from vehicle and equipment exhaust; stacks and/or vents for furnaces, hot water heaters; and loss of ODS from air-conditioning systems (Buckley AFB 2004a). Therefore, direct, short- and long-term impacts are expected on air quality as a result of the Proposed Action. These impacts are discussed in detail in the following sections. However, as described below in the Air Conformity Analysis for the Proposed Action section, emissions from construction and operation of the Education Center would not have a major impact on air quality.

SECTION THREE **Affected Environment and Environmental Consequences**

Construction Activities

Construction activities associated with the Proposed Action would create short-term fugitive dust emissions from the following activities:

- Site grading (scraping, bulldozing, and compacting)
- Foundation excavation
- Utilities trenching
- Material handling (soils, aggregate, and construction debris/waste)
- Vehicle travel on paved and unpaved roads
- Building construction
- Walk-way, sidewalk and parking lot preparation, paving, and painting
- Landscape and turf installation
- Miscellaneous emissions (equipment track out, windblown dust, etc.)

Fugitive dust emissions generated from the Education Center construction project would depend on the extent and duration that the activities listed above are performed to complete the project. BMPs that can be instituted onsite to minimize fugitive dust emissions may include the application of water or other chemical stabilizers on exposed earth surfaces, and other preventive techniques. The following techniques have been shown to be effective for controlling the generation and migration of dust during construction and vehicle and equipment travel activities:

- Keeping roads clean and free of dirt spilled or tracked from construction equipment
- Applying water on haul roads and other exposed earth surfaces
- Hauling materials in properly covered or watertight containers
- Restricting vehicle speed to 10 mi per hour (16.1 km per hour)
- Covering excavated areas and material after excavation activity ceases
- Reducing the excavation size and/or number of excavations (URS 2005).

Using the above-mentioned dust suppression techniques (within reason) would not create excess water, which would result in unacceptable wet conditions. In addition, control techniques, such as chemical stabilization, reduction of surface wind speed with windbreaks (snow fence, silt fence), or source enclosures (netting, mulching) can be employed to suppress dust generation and migration without the use of water (Buckley AFB 2004a).

Additional preventive techniques may entail periodic street and access road sweeping, expeditious cleanup of materials spilled on paved or unpaved travel surfaces, gravelling of dirt access roads and work areas, the elimination of mud/dirt carryout on paved roads at construction sites, and vehicle washing. These measures would aid in preventing or reducing the deposition of materials that could become airborne through vehicle and equipment traffic or by wind (Buckley AFB 2004a).

Combustion emissions would be generated from operation of heavy equipment during the ground disturbance phase of construction, delivery of materials to the base, and commuting by

SECTION THREE Affected Environment and Environmental Consequences

contractor employees to the base in their personal vehicles. Pollutants from vehicle and heavy equipment exhaust include NO_x, CO, PM₁₀, and VOCs.

The Air Conformity Analysis Model (ACAM) was used in this EA to estimate emissions from the construction phase of the Proposed Action, including fugitive dust and combustion emissions (U.S. Air Force 2003). ACAM calculates construction emissions based on algorithms developed by South Coast and Santa Barbara Air Quality Management Districts from California, and it incorporates the USEPA's Mobile6, a regulatory on-road source model to calculate on-road vehicle emissions (Air Force Center for Environmental Excellence 2004; South Coast Air Quality Management District 1993; Sacramento Metropolitan Air Quality Management District 1994). ACAM estimates fugitive dust emissions based on the area of ground disturbance related to the construction project and the duration of the disturbance. ACAM estimates combustion emissions from the heavy equipment and vehicles based on the areas graded and paved, the square footage of the building, and the duration of grading and construction phases of work. The duration of the grading and construction phases were estimated to be 30 days and 335 days, respectively. Areas of ground disturbance were assumed at maximum anticipated footprint sizes, with allowance for contractor staging and preparation areas.

Table 3-2 shows the estimated pollutant emissions that may result from the construction phase of the Proposed Action. Pollutants from vehicle and heavy equipment exhaust (combustion emissions) are included in the NO_x, CO, PM₁₀, and VOCs values. Fugitive dust emissions are included in PM₁₀ values.

Table 3-2
Education Center Construction Air Emissions

Criteria Pollutants	Denver AQCR Total Emissions ¹ (tpy)	Construction Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold ² (tpy)	Exceeds Threshold? (Yes/No)
NO _x	112,785	6.26	0.0056%	No	100	No
SO _x	69,350	0.78	0.0011%	N/A ³	N/A ³	N/A ³
VOCs	167,900	0.77	0.0005%	No	100	No
CO	678,170	4.68	0.0007%	No	100	No
PM ₁₀	32,156	2.96	0.0092%	No	100	No

¹Source: (CAQCC, 2001a, 2001b, 2003)

²Source: 40 CFR 93.153(b)(1)

³There are no regionally significant or applicable thresholds for SO_x because the Metropolitan Denver Air Quality Control Region (AQCR) is in attainment for this pollutant.

N/A = not applicable

tpy = tons per year

Emissions from Completed Building and Facility Operation Activities

The only stationary sources of emissions from completed buildings and facilities that would be installed and operated as part of the Proposed Action are furnaces, boilers, hot water heaters, and air conditioning systems. Combustion sources would emit NO_x, CO, SO₂, PM₁₀, and VOCs. Emissions from these sources would be similar to those created from like equipment currently permitted and operating at the base. Currently, Buckley AFB installation facilities consist of approximately 2.64 million sq ft (0.25 million sq m) building space and use approximately 152.04 million cubic feet (cu ft) [4.3 million cubic meters (cu m)] of natural gas per year

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(Buckley AFB 2004h; Buckley AFB 2005b). The Proposed Action would add an additional 19,606 sq ft (1,821 sq m) of building area. Assuming a direct ratio of building area to natural gas use, the Proposed Action would result in an increase in natural gas use of approximately 1.13 million cu ft (31,914 cu m) per year. The estimated increase in gas use was input as the boiler throughput in ACAM to approximate emissions from facility heating systems.

ACAM was used to estimate emissions from the operation phase of the Proposed Action (USAF 2003). Annual emissions for the operation of the Education Center are shown in Table 3-3. As described in the Air Conformity Analysis section of this EA, emissions from operation of the completed Education Center would not have a major impact on air quality.

Table 3-3
Education Center Operation Air Emissions

Criteria Pollutants	Denver AQCR Total Emissions ¹ (tpy)	Operation Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold ² (tpy)	Exceeds Threshold? (Yes/No)
NO _x	112,785	0.05	<0.0001%	No	100	No
SO _x	69,350	0.00	<0.0001%	N/A ³	N/A ³	N/A ³
VOCs	167,900	0.00	<0.0001%	No	100	No
CO	678,170	0.04	<0.0001%	No	100	No
PM ₁₀	32,156	0.00	<0.0001%	No	100	No

¹Source: (CAQCC 2001a, 2001b, 2003)

²Source: 40 CFR 93.153(b)(1)

³There is no regionally significant or applicable thresholds for SO_x because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

Increased Traffic

Operation of the Education Center would not increase the daily traffic flow in the ROI because no additional employees would be added as a result of the Proposed Action, and the Proposed Action would replace a similar existing facility on base.

Air Conformity Analysis for the Proposed Action

The ACAM was used to estimate the direct and indirect emissions increase from the Education Center construction project and compare it to the regionally significant and *de minimus* levels. The site-grading phase is estimated to take 1 month, and the construction phase is estimated to take 11 months. Site operation is assumed to begin the following year. For both the construction and operation of the Education Center the estimated values for CO, VOC, NO_x, SO_x, and PM₁₀ were determined to be less than the USEPA *de minimus* values and less than 10 percent of the Denver AQCR emission inventory. Therefore, a conformity determination is not required. Because the emissions associated with construction and operation of the Education Center would be negligible, the Proposed Action would conform to the State Implementation Plan (SIP) and would not have a major impact on air quality (Buckley AFB 2004a).

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Title V Permit and PSD Analysis for the Proposed Action

Buckley AFB has a Title V permit with facility wide emissions limits for stationary sources. These limits are below the PSD major source thresholds of 250 tpy for all criteria pollutants, and below 100 tpy for PM, PM₁₀, VOC, and CO. The ACAM was used to estimate the direct and indirect emissions increase from stationary sources that will be installed as part of the Education Center project. Current actual emissions from Buckley AFB were determined based on the 2004 Emission Inventory (Buckley AFB, 2005b). The emissions increase when added to the current actual emission will not result in any emissions that exceed the current facility wide limits in the Title V permit. PSD will not be triggered because the site will remain a synthetic minor source. Details of building heating operations are not known at this time. A Title V modification may be required if the new heating equipment has a manufacturer heat input rate of 10 million British Thermal Units per hour or greater and is subject to New Source Performance Standards (40 CFR 60 Subpart Dc).

No Action Alternative

The No Action Alternative would not result in any impacts to ambient air quality conditions of the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.4.1.

Alternative 1

Alternative 1, which would entail constructing the Education Center at an alternative location on base, would result in the same air quality impacts as the Proposed Action.

Alternative 2

Alternative 2, which would entail constructing the Education Center at an alternative location on base, would result in the same air quality impacts as the Proposed Action.

3.5 NOISE

Noise is defined as unwanted sound. Human response to noise is subjective and can vary greatly from person to person. Factors that can influence an individual's response to noise include the magnitude of the noise as a function of frequency and time pattern. The amount of background noise present before an intruding noise occurs, and the nature of the work or activity (e.g. sleeping) that the noise affects, can also influence a person's level of annoyance.

The unit used to measure the loudness of noise is the decibel (dB). Most community noise standards utilize A-weighted decibels as the measure of noise, as it provides a high degree of correlation with human annoyance and health effects. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to functioning of the human ear.

The Air Installation Compatible Use Zone (AICUZ) program was initially established by DoD in response to the Noise Control Act of 1972 to promote an environment free from noise that jeopardizes public health or welfare. The noise zones and the accident potential zones together form the AICUZ for an air installation. AICUZ also serves to protect Air Force airfields from encroachment and incompatible land development.

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3.5.1 Affected Environment

The DoD uses the NOISEMAP computerized day-night average A-weighted Sound Level (DNL) modeling program to produce contours showing noise levels generated by aircraft operations (Figure 3-3). Existing noise conditions on Buckley AFB are predominantly influenced by the operational activities of aircraft and by the test run-ups of aircraft engines. Figure 3-3 contains noise contours on base. Daily activities range from 65 to 80 dB for a typical busy day at Buckley AFB. The ROI considered for noise includes the noise contour containing the proposed site and immediately adjacent areas (Figure 3-3).

3.5.2 Impacts

Noise levels below DNL 65 dB are not considered constraints to development. However, once the noise level meets or exceeds the 65 dB level, different functions, such as residential, administrative, commercial, and recreational, have different thresholds at which noise level reduction measures are recommended for facility design or at which no construction is permitted. Impacts would be considered adverse if there are long-term increases in the number of people highly annoyed by the noise environment, noise-associated adverse health effects to individuals, or unacceptable increases to the noise environment for sensitive receptors. A sensitive receptor is any person or group of persons in an environment where low noise levels are expected, such as schools, day care centers, hospitals, and nursing homes.

This impact section analyzes the AICUZ and noise that occupants and visitors would encounter from the surrounding site location and area.

Proposed Action

Noise impacts from the Proposed Action would be short-term, and primarily from construction activities. Noise created from construction activities could have on- and off-site effects. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft (15.2 m) from the center of the project site (Buckley AFB 2004a). Noise levels at 50 ft (15.2 m) for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91 dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site grading and construction are complete. The effects of noise during construction of the Education Center are expected to be moderate, short-term and would be consistent with acceptable noise levels on Buckley AFB (Buckley AFB 2004a).

The Proposed Action location for the Education Center would be located north of A-Basin Avenue and south of Breckenridge Street and east of Eldora Street in an AICUZ zone of 65 dB. The facility would not encounter average dB levels over 65 dB within the area.

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Figure 3-3 Buckley AFB, NOISEMAP

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The Child Development Center and the Youth Center, which are currently under construction to the west of the Proposed Action location, may be considered sensitive receptors. Noise impacts from the Education Center are expected to be short-term associated with construction. No noise impacts are expected once construction is complete. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of the Proposed Action.

No Action Alternative

Under the No Action Alternative, noise would remain at current levels. No change in noise impacts would occur.

Alternative 1

The Alternative 1 location of the Education Center is west of Aspen Street and south of Beaver Creek Street, in an AICUZ of 70 dB (Buckley AFB 2005a). Occupants and visitors of the facility will not encounter average dB levels over 70.

There are no sensitive receptors (e.g., schools, hospitals) immediately adjacent to the Alternative 1 location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 1.

Alternative 2

The Alternative 2 location for the Education Center would be situated west of Aspen Way and southwest of the new Wing HQ, in an AICUZ of 65 dB or less (Buckley AFB 2005a). Occupants and visitors of the facility would not encounter average dB levels over 65.

There would be no changes to noise as a result of the construction of Alternative 2 and therefore no impacts. There are no sensitive receptors (e.g., schools, hospitals) immediately adjacent to the Alternative 2 location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 2.

3.6 SOILS

3.6.1 Affected Environment

Buckley AFB is located within the Denver Basin on the Colorado Piedmont section of the Great Plains. This section is between the high plains in the east and the front range of the Rocky Mountains to the west. The major soil-mapping units present on Buckley AFB include the Fondis-Weld, Alluvial Land-Nunn, and Renohill-Buick-Little associations (Buckley AFB 2004b). Other areas on base have been identified as gravel pits, rock outcrop complexes, sandy alluvial land, and terrace escarpments.

The Fondis-Weld association mapping unit, composed of the Fondis and Weld soil series, covers the most surface area at Buckley AFB. This association consists of deep loamy soils that formed mainly in silty material deposited by the wind (loess). The Fondis soils are gently sloping (1 to 5 percent slope), well-drained, fertile upland soils with a high water-holding capacity (0.25 inch per inch of soil) and moderately slow permeability (<0.63 inch per hour), and are susceptible to

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wind and water erosion. The Weld soil series consists of deep, well-drained, level to gently sloping (0 to 3 percent slope) soils that occur mainly in uplands. The Weld soils have a moderate rate of water intake and a high available water-holding capacity (0.20 to 0.25 inch per inch of soil). The most common soils in the Buckley AFB area are the Fondis silt loam and the Fondis-Colby silt loam (Buckley AFB 2004b).

The Alluvial Land-Nunn association consists of soils that have moderate permeability (0.63 inch per hour) and high water-holding capacity (0.20 inch per inch of soil), and are typically found along floodplains and terraces. On base, these soils are found along Toll Gate Creek and Sand Creek. These soils are deep, nearly level, loamy, and sandy soils. These soils support crops well, but flood protection is needed to prevent erosion and gully formation. The most common soil types in this association are the Nunn-Bresser Ascalon and the Nunn Loam series, both of which have moderate permeability (0.63 to 6.3 inches per hour) and high water-holding capacity (0.20 inch per inch of soil). Both are typically well-drained, gently sloping soils (0 to 3 percent slope) (Buckley AFB 2004b).

The Renohill-Buick-Little association is composed of moderately deep, well-drained, loamy to clayey soils. The most common soil series within this association are the Renohill-Little complex and the Renohill-Buick loam. Renohill soils are characterized as being moderately fertile with moderate internal drainage, steep slopes (3 to 30 percent slope), moderately slow to slow permeability (less than 0.63 inch per hour), and moderate water-holding capacity (0.15 inch per inch of soil) (Buckley AFB 2004b).

3.6.2 Impacts

Conditions that have been identified that may require standard BMPs during construction include potential for erosion and expansive soils. Expansive soils are present at Buckley AFB. The altered volcanic ash layers that are common in most bedrock units underlying are composed primarily of swelling clay minerals. Soils that develop from and upon them tend to have elevated swell potential as well. Expansive soils and bedrock can repeatedly swell when wet and contract when dry, damaging man-made structures. However, engineering measures, such as installation of deep foundation systems, can decrease potential impacts from expansive soils.

Proposed Action

The Proposed Action location is situated within the Fondis-Weld soil association. Short-term direct effects on soils would be expected under the Proposed Action from construction activities such as grading, excavating, and recontouring of the soil. Coverage under the *NPDES General Permit for Storm Water Discharges from Construction Activities*, site-specific Sediment and Erosion Control Plans, and SWPPPs are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or stock piled for use at other locations on Buckley AFB. Implementation of BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

Under the Proposed Action, approximately 2.7 ac (1.1 ha) would be temporarily impacted from construction activities. Approximately 1.4 ac (0.58 ha) of soil classified as Fondis-Weld soil association would be permanently disturbed as a result of excavation for the below-ground floor

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or establishment of impervious surfaces. During the site reconnaissance it was noted that soil disturbance on the site has already occurred from construction occurring adjacent to the west, and from the installation of a water line on the southern boundary of the site. No residual construction effects on sensitive soil types are expected. No adverse impacts on soil resources are expected under the Proposed Action.

No Action Alternative

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

Alternative 1

The Alternative 1 location is situated within the Ranohill-Buick-Little soil association. This site sits about 10-15 ft below the street level, and drops off at the road shoulder. The site would have to be filled to bring it up to street level, or the driveway would have to be constructed down to the current grade, with the building and parking below street level. Permanent impacts would be approximately 1.4 ac (0.58 ha) of soil classified as Ranohill-Buick-Little would be permanently disturbed as a result of filling the site, excavation for the below-ground foundation, and/or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under Alternative 1.

Alternative 2

The Alternative 2 location is situated within the Ranohill-Buick-Little soil association. Impacts to soil at the Education Center Alternative 2 location would be similar to those described in Alternative 1.

3.7 WATER RESOURCES

3.7.1 Affected Environment

Surface Water

The South Platte River, located approximately 15 mi (27.8 km) northwest of Buckley AFB, is the primary surface water drainage in the region. Several smaller intermittent tributaries located within or adjacent to Buckley AFB feed this drainage system. Off-base tributaries include Sand Creek to the north and Murphy Creek to the east (Figure 3-4). East Toll Gate Creek, an intermittent stream in the western section, and an old tributary of Murphy Creek are the only named tributaries that are present on the base. The most prominent surface water feature is Williams Lake, located in the northeastern section of the installation (Buckley AFB 2004b).

In general, drainage flows in a northwest direction. Buckley AFB has extensive natural and man-made surface drainage as well as underground stormwater drainage lines. All drainage from the northern section of Buckley AFB discharges into Murphy Creek and Sand Creek to the north and east of the base; drainage from the southern and western section of the base discharges into East Toll Gate Creek (Buckley AFB 2004b).

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Figure 3-4 Wetlands on Buckley AFB

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Groundwater

Buckley AFB is located within a groundwater basin known as the Denver Basin. There are four major bedrock aquifers that underlie Buckley AFB within the Denver Basin: the Denver, Upper Arapahoe, Lower Arapahoe, and Laramie-Fox Hills aquifers. These aquifers are separated by a bed of shale with low permeability and are located in zones of sandstones and siltstones (U.S.G.S. 1995).

Surficial aquifers at Buckley AFB are associated with present and ancestral surficial stream and river valleys. The aquifer systems are the result of alluvial deposition from erosion of upland bedrock areas. The alluvial aquifer identified on Buckley AFB is associated with Toll Gate and Sand creeks and consists primarily of coarse-grained materials. Groundwater is recharged to this aquifer through direct infiltration of precipitation and irrigation water and by lateral and upward seepage of groundwater. Groundwater is discharged from the alluvial aquifer through seepage to streams, evapotranspiration, downward seepage into underlying bedrock aquifers, and extraction via pumping wells. Groundwater flow in these surficial aquifers is generally toward the north-northwest along creekbeds, toward the South Platte River (Buckley AFB 2004b).

Stormwater

Stormwater at Buckley AFB is regulated under the USEPA NPDES Stormwater Multi-Sector General Permit for Industrial Activities (COR05A13F, 12/1/2003). Buckley also obtained coverage under the NPDES General Permit for Storm Water Discharges from Federal Facility Small Municipal Separate Storm Sewer Systems (MS4) in Colorado on April 9, 2004 (COR04208F). In accordance with NPDES requirements, a project with a total area of disturbance equal to or greater than one acre requires a site-specific SWPPP, including sediment and erosion control measures, be developed and implemented for construction activities.

Stormwater is collected and transmitted through a system of surface ditches and channels. An underground storm drainage system has been installed around the runway, portions of the taxiways, and the hangars and facilities north of the main ramp. These structures direct stormwater to the adjoining areas of the city of Aurora, East Toll Gate Creek, or the stormwater detention pond located east of Aspen Street and south of Steamboat Avenue (Buckley AFB 2005a).

There are two primary drainage basins: Sand Creek Basin and the East Toll Gate Creek Basin. To offset impacts from channel erosion in the East Toll Gate Creek, structures have been installed to detain surface flows and release them at a controlled rate (Buckley AFB 2005a).

Proposed Action

The Proposed Action location is minimally sloped and drains to the south. Surface drainage in the open ditch running along the north side of A-Basin Avenue flows to the west and then to the north along Telluride Street, discharging into the retention pond located west of Telluride Street and south of Steamboat Avenue in the northwest area of Buckley AFB. Discharge from the retention pond flows off the base into natural and man-made drainages that eventually flow into Toll Gate Creek. Presently, there are no drainage improvements on the site.

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No Action Alternative

Water resources would remain as they currently are under the No Action Alternative.

Alternative 1

The Alternative 1 site slopes to the west/southwest. The Alternative 1 location does not contain any drainage improvements. One of the primary storm drainages is located to the south of the location with water flow to the west.

Alternative 2

The Alternative 2 site slopes minimally to the northwest. The proposed site does not contain any drainage improvements. One of the primary storm drainages is located to the north of the Alternative 2 location with water flow to the west.

3.7.2 Impacts

Depth to groundwater is greater than 20 ft (6.1m) below ground surface. Therefore, it is not expected that groundwater would be impacted during construction activities under the Proposed Action, No Action Alternative, or Alternatives 1 and 2, and will not be discussed further.

Potential impacts would include disruption of natural water flows, contamination entering stormwater discharge, or heavy sediment loading from construction activities. Preparing and implementing a site-specific SWPPP, as required by the NPDES program for construction projects with a total area of disturbance equal to or greater than one acre requires, can minimize adverse impacts. The goal of this plan is to provide construction and post-construction BMPs to control and manage the loading of sediment and other pollutants to levels sufficient to protect downstream water quality. In addition to a SWPPP, the proposed site and alternatives are bounded by existing roadways. The roadways provide stormwater drainage through natural overland surface runoff. Man-made engineered drains, culverts, and above and underground piping systems would also assist in reducing potential impacts.

The increase in stormwater runoff volume would result from the reduction of pervious surfaces on the base as a consequence of building, parking lot, and walking path construction. Areas of impervious surface would be increased with completion of construction of the facilities and associated structures. To calculate the area of impervious surface for each facility, parking lot areas were estimated at 300 sq ft (27.9 sq m) per parking space, which includes turning areas and aisles between rows. Total estimates may include some areas that may be landscaped, but are included until final design for landscaping has been completed.

Proposed Action

There are approximately 3,200 ac (1,295 ha) of drainage area at Buckley AFB, of which 525 ac (212.5 ha), or 16.4 percent, are impervious surface. The Proposed Action would increase the impervious surfaces at Buckley AFB by approximately 1.4 ac (0.58 ha). The increase of impervious surfaces is shown in Table 3-4. This would increase the total impervious surface at the base to a total of 526.4 ac (213 ha), an increase of 0.01 percent. Once the proposed project is completed, an increase of approximately 1.4 ac (0.58 ha) of impervious surfaces is expected.

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Assuming an annual precipitation rate of 16.3 inches per year and no losses due to evaporation, the anticipated increase in stormwater runoff due to the Proposed Action would be approximately 0.62 million gallons per year. The exact direction of increased runoff is not currently known (per 40 CFR 1502.22) and would need to be assessed in further detail through site-specific drainage engineering plans that would be developed for construction projects. Therefore, the increase in impermeable surfaces on site would increase the volume of storm water that would have to be managed prior to its outfall off site.

Table 3-4
Increased Impervious Surface Calculations for Education Center

Building Area Impervious Surfaces (sq ft)	Parking Lot Impervious Surfaces (sq ft) ¹	Sidewalk/walkway Impervious Surfaces (sq ft) ²	Total Impervious Surfaces (sq ft)
19,606	38,400	4,353	62,360

(1) Parking lot area is estimated on 300 sq ft per parking space, including turning areas.

(2) Sidewalks length is assumed to be the full perimeter length and width of the building. Total area for walkways and sidewalks is calculated assuming a 6-foot wide walkway and sidewalk.

Buckley AFB has extensive natural and man-made surface drainage, as well as underground storm drainage lines, that would convey increased stormwater volumes created from increased impervious surfaces. Stormwater drainage systems associated with the building construction would be constructed in order to handle the increased runoff; the post-construction BMPs discussed previously would also be implemented, as appropriate. The increased amount of impervious surface is expected to have negligible, long-term, adverse impacts to surface water at Buckley AFB.

Construction BMPs will also be implemented for the Proposed Action or action alternatives to decrease sedimentation from erosion. Common BMPs for construction and demolition activities will be implemented to minimize erosion. Construction BMPs may include the following:

- Limit stockpiling of materials on site
- Manage stockpiled materials to minimize the time between delivery and use
- Cover stockpiled materials with tarps
- Install sediment/straw logs or silt fences around material stockpiles and along the downgradient edge of areas disturbed by construction activities
- At culverts, drains, and ditches: install sediment/straw logs across/around inlets; erosion control blankets and check dams at outlets; and check dams periodically across lengthy ditch profiles.
- Post-construction BMPs would be implemented to reduce runoff peak flows from the increased impervious surfaces, including minimizing contiguous areas of impervious surfaces by using landscaping, grass buffer strips, or grass-lined swales and directing runoff from a site to these features

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No Action Alternative

The No Action Alternative would have no impacts on water resources.

Alternative 1

Impacts to water resources under Alternative 1 for the Education Center are expected to be the same as the Proposed Action.

Alternative 2

Impacts to water resources under Alternative 2 for the Education Center are expected to be the same as the Proposed Action.

3.8 BIOLOGICAL RESOURCES

This section describes native and non-native wildlife, wetlands, and vegetation, as well as threatened, endangered, and other sensitive species known or likely to occur at Buckley AFB. This analysis is based on site visits conducted in August 2005, as well as literature and previous surveys conducted at Buckley AFB.

3.8.1 Vegetation and Wetlands

This section describes the affected environment and potential impacts to vegetation and wetland resources for the Proposed Action and each alternative.

3.8.1.1 Affected Environment

Buckley AFB is located in the Great Plains-Palouse Dry Steppe Province Ecoregion (Bailey 1995), an ecoregion also classified as shortgrass prairie (Buckley AFB 2004b). The *Draft Integrated Natural Resource Management Plan* (Buckley AFB 2004b) identifies four vegetation types occurring at Buckley AFB, including:

- Midgrass prairie comprised of blue grama, western wheatgrass, crested wheatgrass
- Riparian corridors consisting of bottomland meadows or cottonwood/willow habitat
- Weedy/disturbed areas
- Landscaped areas, including turfgrass

Midgrass prairie is dominated by native grass species such as blue grama (*Bouteloua* sp.), western wheatgrass (*Agropyron smithii*), and buffalo grass (*Buchloe dactyloides*). Other common grasses include tumble grass (*Schedonnardus paniculatus*) and three-awn (*Aristida fendleriana* and *A. longiseta*). Fringed brome grass (*Bromus ciliatus*) dominates depressions and gullies within the mixed grass prairie. Areas dominated by crested wheatgrass, a non-native grass species historically used to revegetate disturbed ground, occur throughout the base. Herbaceous species associated with mixed grass prairie are scarlet globe mallow (*Spaeralcea coccinea*), prickly pear (*Opuntia macrohiza*), rabbitbrush (*Chrysothamnus nauseosus*), and snakeweed (*Gutierrezia sarothrae*).

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Riparian habitats are characterized as bottomland meadows or cottonwood/willow. Bottomland meadows occur within the mixed grass prairie and may support wetlands. Twenty-three wetlands were identified on Buckley AFB during a 2001 survey (Buckley AFB 2004b). The filling of wetlands and waters of the U.S. is regulated under the Clean Water Act, and construction in or near these sensitive areas would require Buckley AFB to apply for Section 404 permits (Buckley AFB 2004b). Fringed brome grass dominates the bottomland meadows and is generally associated with moist soil conditions (Buckley AFB 2004b). Plains cottonwood (*Populus deltoides*)/willow (*Salix* sp.) communities dominate riparian corridors.

Cottonwood/willow habitat does not occur within the Proposed Action or action alternative sites.

Areas dominated by weeds have been disturbed by past or current ground-disturbing construction activities or past grazing activities. Weed species observed include fringed sagewort (*Artemisia frigida*), cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Canada thistle (*Cirsium arvense*), and Russian thistle (*Salsola tragus*). Noxious weeds observed at Buckley AFB include Dalmation toadflax (*Linaria genistifolia* ssp. *dalmatica*) and leafy spurge (*Euphorbia esula*) (Buckley AFB 2004b).

Landscaped areas consist of turf grass (Kentucky bluegrass, common Bermuda grass, wintergrass, and Alta fescue mixes). Ornamental tree species planted on Buckley AFB consist of green ash (*Fraxinus pennsylvanica*), honey locust (*Gleditsia triacanthos*), Colorado blue spruce (*Picea pungens*), ponderosa pine (*Pinus ponderosa*), Siberian elm (*Ulmus pumila*), Gambel oak (*Quercus gambelii*), and buffalo juniper (*Juniperus sabina*). Additionally, planted shelterbelts consisting of several rows of shrubs and deciduous trees are used along property boundaries to filter noise, high winds, and dust from high traffic areas.

The vegetation at the Proposed Action site and each of the alternative sites is composed primarily of non-native species indicating that each of the sites was previously disturbed in the past. A description of the vegetation present at each site is discussed below.

Proposed Action

The land within the proposed action site was mostly cleared at the time of the site visit. Additionally, it appeared that vegetation had been treated with an herbicide as a large patch of vegetation in the northern portion of the site was dead. Where vegetation was present, bindweed, Russian thistle, and sunflower were dominant with approximately 50 percent bare ground. Several trees are present on the northwestern boundary of the site.

Alternative 1

Alternative 1 is dominated by mixed grass with a shelterbelt of junipers running north-south through the site. Vegetation observed includes Canada thistle, bindweed, and cheatgrass. A wetland is located south of the site (Figure 3-4), outside the boundary of the alternative, and is dominated by Canada thistle. This wetland is a natural drainage, though it is dry most of the year and is considered jurisdictional by the USACE because it is connected to Toll Gate Creek to the west. It is classified as palustrine emergent, which are wetlands characterized by herbaceous perennial vegetation that is present during the majority of the growing season (Cowardin et al. 1979). Planted shelterbelt trees are present on the site.

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Alternative 2

The vegetation at Alternative 2 is dominated by cheatgrass and crested wheatgrass, with a shelterbelt of short junipers and deciduous shrubs bisecting the site. Other vegetation observed included bindweed, Russian thistle, and scattered copper mallow and prickly pear (*Opuntia* sp.). The same wetland described under Alternative 1 is located north of the Alternative 2 site.

3.8.1.2 Impacts

This section describes potential impacts to vegetation from construction of the Proposed Action or alternatives. Under the Proposed Action or either of the action alternatives, temporary impacts would consist of 2.7 ac (1.1 ha) and permanent impacts would consist of 1.4 ac (0.58 ha).

Proposed Action

Impacts to vegetation would be construction-related, since operation of the facilities would have no direct or indirect effects on vegetation. Construction impacts to vegetation would be generally direct and long-term in duration. Additional impacts to existing vegetation would occur from any required utility connection to a proposed facility during construction. Adverse impacts to vegetation would be minimized by revegetation of disturbed areas not planned for buildings, parking lots, streets, or landscaping. Revegetation would consist of seeding with native grass mix as soon as possible after construction is complete.

The vegetation at the Proposed Action site has been previously disturbed or removed. Therefore, impacts would be direct and negligible due to the existing condition of the site.

No Action Alternative

No impacts to vegetation are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

Alternative 1

Implementation of Alternative 1 would result in direct and minor adverse impacts to grassland dominated by non-native species and shelterbelt vegetation. The wetland located south of the site would be delineated and a jurisdictional determination from the USACE would be conducted to determine the exact boundaries. Once this boundary was confirmed, a 50-ft buffer around the wetland would be established (with fencing or other measures) during construction and operation of the new facilities. Erosion and sediment control BMPs required by SWPPPs (e.g., silt fences), as well as spill prevention, control, and countermeasure procedures identified in the Buckley AFB Integrated Environmental Response Plan, would be implemented to further reduce the potential for impacts to wetlands. Disturbed areas would be revegetated immediately after construction is complete.

If it is determined that the construction must occur in the wetland under Alternative 1, a CWA Section 404 permit from the USACE would be required. The loss of wetland habitat would be offset by mitigation identified during the consultation with the USACE for this permit, and per

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the requirements of the Buckley AFB INRMP (Buckley AFB 2004b) and Air Force Instruction 32-7064, *Integrated Natural Resources Management*.

Alternative 2

Implementation of Alternative 2 would result in direct and minor adverse impacts to grassland and shelterbelt vegetation. The wetland described under Alternative 1 is located north of the Alternative 2 site, but no adverse impacts are expected as the building would be built outside of the 50-ft buffer described under Alternative 1.

3.8.2 Wildlife

This section describes the wildlife species and their habitat associations at Buckley AFB. No aquatic habitat occurs within any of the proposed alternatives; therefore, animals associated with permanent water sources are not included in this analysis.

3.8.2.1 Affected Environment

The wildlife species known to occur basewide are described as follows:

Mammals

No ungulates occur on the base due to the exclusion fencing around the perimeter, although pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) historically occurred on the base and still inhabit surrounding properties (Buckley AFB 2004b).

Carnivores inhabiting Buckley AFB include red fox (*Vulpes vulpes*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and long-tailed weasel (*Mustela frenata*).

Small mammals observed at Buckley AFB include rodents and lagomorphs (rabbits). The most widely observed of these is the black-tailed prairie dog (*Cynomys ludovicianus*). Prairie dogs are considered keystone species of the shortgrass prairie ecosystem as they support a diverse array of other plant and wildlife species within their colonies. Prairie dogs are discussed in more detail in Section 3.8.3.

Other rodents known to inhabit Buckley AFB include plains pocket gopher (*Geomys bursarius*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), fox squirrel (*Sciurus niger*), deer mouse (*Peromyscus maniculatus*), and prairie vole (*Microtus ochragaster*). Common lagomorphs include black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendi*), eastern cottontail (*Sylvilagus floridanus*), and desert cottontail (*Sylvilagus auduboni*).

Birds

The midgrass prairie community supports numerous bird species, many of which are ground-nesters. The most common songbirds inhabiting the prairie include western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), lark bunting (*Calamospiza melanocorys*), killdeer (*Charadrius vociferous*), black-billed magpie (*Pica pica*), mourning dove (*Zenaidura macroura*), western kingbird (*Tyrannus verticalis*), and eastern kingbird (*Tyrannus*

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tyrannus). Species more common in urbanized areas include house finch (*Carpodacus mexicanus*), common grackle (*Quiscalus quiscula*), and non-native house sparrow (*Passer domesticus*), rock dove (*Columba livia*), and European starling (*Sturnus vulgaris*).

Raptor species known or likely to occur at Buckley AFB include the burrowing owl (*Athene cunicularia*; discussed further in Section 3.8.3), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamacensis*), prairie falcon (*Falco mexicanus*), and American kestrel (*Falco sparverius*). Additionally, bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), and rough-legged hawks (*Buteo lagopus*) may be observed in winter.

Reptiles and Amphibians

The plains spadefoot toad (*Spea bombifrons*) and Great plains toads (*Bufo cognatus*) occupy grassland habitat along riparian floodplains and may occur on Buckley AFB (Hammerson 1999). The bullfrog (*Rana catesbeiana*) and northern leopard frog (*Rana pipiens*) have been observed on the base but are generally found near a permanent water source, which does not occur in the vicinity of any of the four proposed projects or their project alternatives.

A variety of reptile species inhabit Buckley AFB; some of the more commonly observed species include northern prairie lizard (*Sceloporus undulates garmani*), bullsnake (*Pituophis catenifir*), western hognose snake (*Heterodon nasicus*), plains garter snake (*Thamnophis radix*), and prairie rattlesnake (*Crotalus viridis viridis*) (Buckley AFB 2004b).

The existing wildlife habitats at the Proposed Action and action alternatives sites are described below.

Proposed Action

The Proposed Action site was mostly disturbed at the time of the site visit and likely does not provide suitable wildlife habitat for many species. Cottontail rabbits are likely present and the trees on the northwestern boundary of the site have supported magpie nests in the past. Also, in previous years, a great horned owl has nested in a pine tree located just northeast of the project site. Prairie dogs have been observed on this site.

Alternative 1

This site consists of mixed grass prairie habitat with a shelterbelt bisecting the site in a north-south direction. A wetland is located just south of the site. This site likely supports ground-nesting birds, raptors, small- and medium-sized mammals, and reptiles, as discussed above. Prairie dogs occur on this site.

Alternative 2

The habitat at this site is midgrass prairie dominated by crested wheatgrass with a shelterbelt of juniper and deciduous shrubs bisecting the site. The Alternative 2 site likely supports ground-nesting birds, raptors, small- and medium-sized mammals, and reptiles, as discussed above. Medium-density colonies of prairie dogs occur in the northern and southern ends of this site.

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3.8.2.2 Impacts

This section analyzes potential impacts to wildlife species from construction of the Proposed Action and its alternatives. The ROI analyzed for impacts to wildlife include the Proposed Action and their alternative sites, as well as immediately adjacent habitats.

Impacts to wildlife from construction of the Proposed Action or alternatives include habitat loss, disturbance (avoidance and displacement) from construction or operation, and mortality to small-sized animals from crushing, burial, or lethal prairie dog removal (e.g., fumigation, see section 3.8.3.2). Habitat loss results from permanent removal of existing vegetation and replacement with pavement or structures. Habitat loss may be temporary in areas that are revegetated after construction. The destruction of black-tailed prairie dog colonies would result in the permanent loss of habitat for species dependent on prairie dog colonies for food or shelter. Potential impacts to black-tailed prairie dogs are discussed further in Section 3.8.3.2.

Construction activity is likely to temporarily displace many animals due to noise, human presence, and heavy equipment. The duration and distance an animal is displaced is generally dependent on the individual or species, and an individual's response to disturbance may change with time. Direct impacts from mortality to smaller, less mobile species would occur during construction from ground-clearing and earth-moving.

Nearly all bird species present in the project area are protected by the Migratory Bird Treaty Act (MBTA), a federal act that prohibits destruction or disturbance of active nests that results in loss of eggs or young without a permit from the U.S. Fish and Wildlife Service (USFWS). All wild birds, including raptors, are protected under the MBTA, except for non-native species mentioned above. Vegetation-clearing, earth-moving, and other construction activities have the potential to destroy nests of bird species protected under the MBTA.

Under the Proposed Action or action alternatives, ground-disturbing activities (such as earth-moving and vegetation-clearing) may destroy bird nests of arboreal and ground-nesting species if construction occurs during breeding season, generally between 01 March and 31 October. Additionally, noise from heavy equipment operation and other construction activities may temporarily disturb nesting birds, possibly resulting in nest abandonment.

To avoid potential adverse impacts to ground-nesting birds and to comply with the MBTA, all vegetation should be cleared prior to 01 March or after 31 October. If construction occurs during the nesting season and vegetation has not been cleared, surveys for active ground nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

Construction of this facility would temporarily disturb 2.7 ac (1.1 ha) and permanently remove 1.4 ac (0.58 ha) of wildlife habitat. Impacts specific to the Proposed Action or alternatives are discussed below.

Proposed Action

Impacts to wildlife under the Proposed Action would be minor, short- and long-term, and direct. Direct impacts include the loss of potential wildlife habitat. Wildlife would be displaced to other areas of adjacent habitat, or killed by crushing or burial during construction activities by heavy equipment. However, this loss of habitat is considered minor due to the disturbed state of the

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site. In addition, the ongoing construction to the west of the site would likely limit wildlife use of the area. Prairie dogs that inhabit the Proposed Action site would require removal; removal of these burrows would represent a loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows. The construction of the Education Center represents a long-term but minor loss of wildlife habitat.

No Action Alternative

No impacts to wildlife are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

Alternative 1

Under Alternative 1, impacts to wildlife would be moderate, short- and long-term, direct and indirect impacts from construction. Impacts would be greater in intensity than the Proposed Action as the Alternative 1 site provides better quality wildlife habitat due to its proximity to wetlands, greater vegetative cover, and the lack of construction in the immediate area. Prairie dogs that inhabit the Alternative 1 site would require removal; removal of these burrows would represent a loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows.

Alternative 2

Impacts under the Alternative 2 would consist of moderate, short- and long-term, and direct construction impacts. Prairie dogs that inhabit the Alternative 2 site would require removal; removal of these burrows would represent a loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows.

3.8.3 Threatened, Endangered, and Other Sensitive Species

Threatened and endangered plant and animal species are protected under the ESA or Colorado State law. An endangered species is defined as any species in danger of extinction throughout all, or a significant portion of, its range; a threatened species is one that is likely to become endangered in the foreseeable future. Other sensitive species include those listed by the Colorado Division of Wildlife (CDOW) as special concern, which receive no formal protection, but are still considered when assessing potential project impacts.

3.8.3.1 Affected Environment

Federal and Colorado State listed threatened and endangered species, as well as CDOW species of concern, are shown in Table 3-5. Black-tailed prairie dogs and burrowing owls are known to

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occur within or near the Proposed Action or the alternative sites; these species are discussed in more detail below.

**Table 3-5
Threatened, Endangered, and Other Sensitive Species
and Their Occurrence at Buckley AFB**

Common Name	Scientific Name	Status		Potential for Occurrence on Site
		Federal	State	
Mammals				
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	--	SC	Present.
Black-footed ferret	<i>Mustela nigripes</i>	E	E	Not present; Buckley AFB is within Block Clearance Zone in Colorado.
Swift fox	<i>Vulpes velox</i>	--	SC	Unlikely; occurs on eastern plains of Colorado in areas of native prairie. No observations at Buckley AFB.
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	T	T	Not present; Buckley AFB is within the Denver Metropolitan Block Clearance Zone.
Birds				
Burrowing owl	<i>Athene cunicularia</i>	--	T	Present. Nesting locations in vicinity of the Proposed Action and action alternatives.
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	T	Occasional visitor; no known nest or roost locations within base.
Ferruginous hawk	<i>Buteo regalis</i>	--	SC	Potentially present; no known nesting locations
Plains sharp-tailed grouse	<i>Tympanuchus phasianellus jamesii</i>	--	E	Potentially present; no known nesting locations.
Amphibians				
Northern leopard frog	<i>Rana pipiens</i>	--	SC	Potentially present in association with permanent water sources. No permanent water sources in any proposed or alternative sites.
Plant Species				
Colorado butterfly plant	<i>Gaura neomexicana ssp. coloradensis</i>	T	--	Unlikely; survey conducted in 2004 with none found.
Utes ladies'-tresses	<i>Spiranthes diluvialis</i>	T	--	Unlikely; surveys conducted in 2001 with none found.

T = Threatened

E = Endangered

SC = Species of Special Concern in Colorado, CDOW listing

Black-tailed Prairie Dog

The black-tailed prairie dog was a candidate for listing under the ESA in 2000, but was removed from this status in 2004. However, black-tailed prairie dogs are still considered a species of special concern by the CDOW due to their role as a keystone species and their importance to the shortgrass prairie ecosystem.

Black-tailed prairie dogs occur in many areas throughout Buckley AFB. They inhabit burrows, which form networks of tunnels, typically 3 to 6 ft (0.7 to 1.8 m) deep. Many other species inhabit prairie dog burrows, including burrowing owls, cottontails, other rodents, reptiles, insects, and spiders (Hoogland 1995).

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Buckley AFB has a *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001) in place to address management of active black-tailed prairie dog colonies. This EA specifies that if a prairie dog colony would be impacted by a proposed action, then prairie dogs would be removed prior to construction using approved removal methods described in the EA.

Figure 3-5 shows the location and estimated density of prairie dog colonies at each of the proposed sites. During the site visit, prairie dogs were observed adjacent to the Proposed Action and alternative locations.

Burrowing Owl

Burrowing owls are listed as threatened in Colorado but also receive federal protection under the MBTA. Burrowing owls nest in abandoned prairie dog burrows and are generally present on base from early March to late October. Burrowing owls may be present at any of the proposed action and alternative sites during these months. However, locations of nests may differ from year to year. No evidence of nests were observed within the Proposed Action area or the alternative sites. Preconstruction nest surveys would determine the presence of burrowing owls on a site between 01 March and 31 October.

3.8.3.2 Impacts

This section analyzes potential impacts to black-tailed prairie dogs (Colorado species of special concern) and burrowing owls (Colorado threatened) from implementation of the Proposed Action and each alternative. The ROI includes the Proposed Action and action alternative sites, as well as adjacent areas.

Black-tailed Prairie Dog

Approved prairie dog removal methods, including non-lethal and lethal methods, are described and analyzed in the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001). However, because the black-tailed prairie dog was a federal candidate species when the EA was written, it only described and analyzed the use of approved lethal removal methods under specific circumstances. With the recent delisting of the black-tailed prairie dog, lethal methods, as well as methods not described in the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001) (such as transferring prairie dogs to raptor facilities) may be used in any circumstance to eliminate safety- and/or mission-related impacts that occur due to the presence of this species (e.g., prairie dogs provide prey for raptors that contribute to bird-aircraft strike hazards). Therefore, impacts from lethal removal methods and transfer to raptor facilities are analyzed in this EA.

Although black-tailed prairie dogs were recently delisted as a federal candidate species, the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001) still provides black-tailed prairie dog management directive until it is revised or replaced by another EA or management directive. Prairie dogs are still considered a species of special concern in Colorado and their burrows do support numerous other wildlife species, including nesting burrowing owls.

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Figure 3-5 Prairie Dogs and Burrowing Owls on Buckley AFB

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The *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001) specifies that if a prairie dog colony would be impacted by a proposed action, then prairie dogs would be removed prior to construction. The EA addresses the impacts of using approved non-lethal methods, but only covers the impacts from lethal methods under specific circumstances, and does not consider options that are now available given the delisting of this species, such as transferring to a ferret or raptor facility.

Approved lethal methods of removal, such as fumigation, would result in the direct loss of individual prairie dogs. To avoid the direct loss of prairie dogs, the preferred method of removing this species at Buckley AFB is live capture and transfer to a USFWS ferret facility, or transfer to a raptor facility. Although this does not result in direct mortality of individuals, transfer to a ferret or raptor facility could still result in adverse impacts to some individual black-tailed prairie dogs because they are part of the prey base for these species.

Burrowing Owl

Burrowing owls have nested in various locations throughout Buckley AFB where suitable prairie dog habitat occurs (Figure 3-5). Indirect and long-term impacts to burrowing owls would include loss of habitat when a prairie dog colony is destroyed and replaced with the proposed facility. The loss of prairie dog colonies would reduce the availability of burrowing owl nest sites, although nest sites would still be available in other areas of Buckley AFB.

In accordance with the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001), should construction occur during the burrowing owl nesting season, pre-construction surveys would be conducted to determine the presence or absence of nesting burrowing owls at the Proposed Action or Alternative 1 and 2 locations in accordance with the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB 2001). If nesting burrowing owls are present, a 150-ft (45.72-m) buffer would be established around active nest sites during the breeding season to protect owls from disturbances associated with construction, especially increased noise. Given these measures, direct and short-term impacts to nesting individuals or young burrowing owls from construction-related noise would be negligible. If nesting burrowing owls are identified, then prairie dog removal would not be conducted.

Proposed Action

Impacts to prairie dogs as a result of habitat loss, transfer, or lethal removal under the Proposed Action would be moderate and long-term.

Suitable habitat is present for burrowing owls at the Proposed Action site, as prairie dog burrows are present. To avoid impacts to nesting burrowing owls and to prevent individuals from nesting under the Proposed Action, prairie dogs should be removed and burrows destroyed prior to March 1. No direct impacts to burrowing owls would be anticipated from black-tailed prairie dog removal under the Proposed Action.

No Action Alternative

No impacts to threatened, endangered, or other sensitive species are expected under the No Action Alternative as the proposed Education Center would not be constructed or operated.

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Alternative 1

Impacts to prairie dogs as a result of habitat loss, transfer, or lethal removal under Alternative 1 would be moderate and long-term.

Suitable habitat is present for burrowing owls at Alternative 1. To avoid impacts to nesting burrowing owls and to prevent individuals from nesting under Alternative 1, prairie dogs should be removed and burrows destroyed prior to March 1. No direct impacts to burrowing owls would be anticipated from black-tailed prairie dog removal under the Alternative 1.

Alternative 2

Impacts to prairie dogs as a result of habitat loss, transfer, or lethal removal under Alternative 2 would be moderate and long-term.

Suitable habitat is present for burrowing owls at Alternative 2. To avoid impacts to nesting burrowing owls and to prevent individuals from nesting under Alternative 2, prairie dogs should be removed and burrows destroyed prior to March 1. No direct impacts to burrowing owls would be anticipated from black-tailed prairie dog removal under the Alternative 2.

3.9 HAZARDOUS MATERIALS AND WASTE

This section discusses hazardous materials and waste issues at Buckley AFB related to construction of the Proposed Action or action alternatives. This discussion includes asbestos, Buckley AFB Installation Restoration Program (IRP) and Military Munitions Response Program (MMRP) Sites, fuel storage tanks, radon, and polychlorinated biphenyls (PCBs). Solid waste and pollution prevention is addressed in Section 3.10.

3.9.1 Affected Environment

Site visits were conducted at the Proposed Action location on 28 June 28 2004 and 9 August 2005. A site visit was conducted at the alternative locations on 9 August 2005. Sites were observed by walking the site perimeter and transecting the internal areas of the property.

Asbestos

World War II (WWII) era buildings were on site at Buckley AFB around 1944 (Figure 3-6). These buildings were demolished during the late 1940s and early 1950s. The building materials were removed from the base but many of the foundations were left behind. The wide use of asbestos prior to 1980 contributes to the concern that the demolition debris that was buried or spread may have contained asbestos, and may not have been mitigated to today's standards. All projects should be evaluated before construction begins for such material but especially so for the projects in old WWII building areas (Buckley AFB 2005c).

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Figure 3-6 Former, Existing, and Future Structures at Buckley AFB

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Installation Restoration Program

The IRP is a program category under the Air Force Environmental Restoration Program (ERP). The scope of the IRP is investigation and cleanup of Air Force sites whose past activities created contamination primarily from hazardous substances, hazardous wastes, low level radioactive materials or wastes, or petroleum, oils and lubricants. The Buckley IRP consists of ten sites, two of which have been closed, and one Area of Concern at the Buckley Annex. ERP sites are illustrated in Figure 3-7.

Also ongoing is an expansion of the Preliminary Assessment and Site Inspection conducted by the Colorado ANG in the 1980s. This nationwide search for historical Army, Navy, and National Guard records is designed to determine whether there are contaminated sites not previously discovered at Buckley AFB.

Military Munitions Response Program

The MMRP is another program category under the ERP. The scope of the MMRP is investigation and cleanup of other-than operational ranges contaminated with military munitions, e.g., unexploded ordnance (UXO), or chemical residues of munitions. Buckley AFB currently has two MMRP sites, the abandoned outdoor range and the former skeet range, illustrated in Figure 3-7.

The Air Force MMRP is centrally managed by Air Staff, which recently initiated a Comprehensive Site Evaluation, Phase I, at each base to identify additional MMRP sites that may require responses to protect human health and the environment.

Fuel Storage Tanks

Prior to 1998, the majority of underground storage tanks (USTs) were removed from Buckley AFB (Buckley AFB 2005a). However, aboveground storage tanks (ASTs) are still located at several locations around the base. Buckley AFB has a current Draft Spill Prevention and Countermeasure Control Plan (SPCC) that is incorporated into the Integrated Environmental Response Plan. Note that the fuel farm is located directly to the west of the Proposed Action location.

Radon

Radon is a naturally occurring, odorless, radioactive gas produced by naturally decaying uranium. Extended exposure to high levels of radon is a suspected carcinogen. Federal guidelines determine levels below four picocuries per liter (pCi/L) are low risk. Buckley AFB is located within an area of highest potential for radon gas decay (levels that are above 4 pCi/L). An on-site radon assessment was conducted for every building at Buckley AFB from 16 – 19 Aug 2004. Results ranged from 0.0 to 8.4 pCi/l; all locations but two were below the EPA standard of 4.0 pCi/l, Building 40 (6.0 pCi/l) and Room 113 of Building 1500 (8.4 pCi/l) (Buckley AFB 2005d).

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Figure 3-7 ERP and MMRP Sites Map

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Poly-chlorinated biphenyls

By federal definition, “PCB equipment” contains 500 parts per million (ppm) PCBs or greater; whereas “PCB-contaminated equipment” contains PCB concentrations equal to or greater than 50 ppm, but less than 500 ppm; and “PCB items” contain from 5 to 49 ppm PCBs. The electrical system at Buckley AFB is working toward becoming PCB-free. All transformers with PCB concentrations over 500 ppm have been removed, replaced, or retrofitted to below 50 ppm (Buckley AFB 2000).

Proposed Action

As shown in Figure 3-6, the Proposed Action site is located in an area where former WWII era buildings were located. However, all samples taken during a Phase II site assessment conducted in the project area were analyzed for asbestos and returned results below laboratory detection limits (Buckley AFB 2005c). Therefore, asbestos is not a concern in the Proposed Action site.

The Proposed Action site is not located within an IRP site.

There are four ASTs located at Building 341 to the northwest of the proposed building area. Two of the tanks contain diesel (one 4,000-gallon and one 6,000-gallon and two contain unleaded gasoline (one 4,000-gallon and one 6,000-gallon). The underground piping is protected by a sacrificial anode and is located within a concrete secondary containment structure. There is no history of spills or leaks associated with these tanks. The tanks are not expected to present any adverse environmental impacts for the proposed construction of the Education Center and are scheduled to be removed in FY 07.

Radon levels might need to be considered at the Proposed Action site, given that the USEPA lists Buckley AFB in an area of highest potential for radon decay (greater than 4 pCi/L).

No Action Alternative

Site conditions would remain as they currently are under the No Action Alternative.

Alternative 1

There is no evidence of former WWII structures being located at the Alternative 1 location, and therefore, asbestos is not a concern.

Alternative 1 is not located within a former IRP or MMRP sites, nor are there any known fuel storage areas, monitoring wells, or past/present range/UXO activities present in the Alternative 1 area.

Radon levels might need to be considered at the Proposed Action site, given that the USEPA lists Buckley AFB in an area of highest potential for radon decay (greater than 4 pCi/L).

Alternative 2

There is no evidence of former WWII structures being located at the Alternative 2 site, and therefore, asbestos is not a concern.

Alternative 2 is not located within a former IRP site.

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A skeet range was operated southwest in the vicinity of the Alternative 2 site from 1942 to as late as 1975. Lead shot from shotgun discharge and debris from shattered targets (pigeons) littered the range (Spangler personal communication). In preparation for construction of Building 1030, the section of the skeet range between Aspen Way and Aspen Street (closest to the firing areas) was cleaned up in 2003 during a non-regulated custodial action. The section west of Aspen Way remains an MMRP site. East of Aspen Street, borrow material from the skeet range was used to extend the current runway to the west, and to fill the surrounding area to make it level with the existing runway. The exact areas where the borrow material was used is unknown, but may have been used within the proposed building area. The borrow material may contain remnants of both lead contained in the shot and polycyclic aromatic hydrocarbons present in the pigeons.

There are no known fuel storage areas present in the Alternative 2 area.

Radon levels might need to be considered at the Proposed Action site, given that the USEPA lists Buckley AFB in an area of highest potential for radon decay (greater than 4 pCi/L).

3.9.2 Impacts

This section discusses areas of potential environmental concern associated with the proposed construction. Because the Proposed Action and alternatives would not disturb PCB equipment, PCB-contaminated equipment, or PCB items, nor would it introduce any PCB-containing equipment to Buckley AFB, PCBs are not discussed further. Also, because asbestos is not a concern in the soils of the Proposed Action or alternative sites, there would be no impacts to or from asbestos, and this topic is not discussed further.

Proposed Action

Radon levels may be of concern during operation of the Education Center. However, appropriate steps would be taken to monitor and mitigate potential radon impacts.

The tanks located at Building 341 do not have any history of spills or leaks and are not expected to impact the Proposed Action location.

No impacts from hazardous materials or waste are expected from Building 340, Vehicle Maintenance. All vehicle maintenance activities are performed within the building and no oil staining or leaking was observed at the facility.

No other hazardous material or waste impacts were identified at the Proposed Action location.

No Action Alternative

No direct impacts to or from hazardous materials and wastes are expected as a result of the No Action Alternative.

Alternative 1

Radon levels may be of concern during operation of the Education Center. However, appropriate steps would be taken to monitor and mitigate potential radon impacts.

No impacts are expected former IRP or MMRP sites, or fuel storage areas.

SECTION THREE Affected Environment and Environmental Consequences

Impacts from radon would be similar to the Proposed Action.

No other hazardous material or waste impacts are expected at the Alternative 1 location.

Alternative 2

No impacts are expected former IRP sites, fuel storage areas, or monitoring wells.

Radon levels may be of concern during operation of the Education Center. However, appropriate steps would be taken to monitor and mitigate potential radon impacts.

No other hazardous material or waste impacts are expected at the Alternative 2 location.

Adverse impacts may potentially occur during construction as a result of the possibility for encountering contamination associated with the abandoned skeet range borrow material used to extend the current runway. If contamination is encountered, it would be managed in accordance with appropriate regulations and AF policy.

3.10 SOLID WASTE AND POLLUTION PREVENTION

3.10.1 Affected Environment

The USAF Pollution Prevention (P2) Program encompasses a range of environmental management functions, including recycling, hazardous/toxic chemicals reduction, green (environmentally friendly) procurement, and waste minimization. The USAF Solid Waste Program deals specifically with the management and reduction of solid waste streams. Both of these programs may affect nearly every aspect of operations at Buckley AFB.

A private contractor provides solid waste collection and disposal services at Buckley AFB. Waste is collected from dumpsters located throughout the base and routinely transported to the Denver-Arapahoe Disposal Site in Arapahoe County. Buckley AFB generated approximately 1,500 tons of non-hazardous waste in FY02, with 0.6 tons of this waste being construction and demolition derived wastes.

Each Air Force Base is required to have a Qualified Recycling Program (QRP), and all facilities at an installation must participate in the QRP. Under the QRP, readily accessible containers should be provided in work areas as appropriate for the accumulation of the following recyclables: copier paper, plastic, metals, glass, used oil, lead-acid batteries, cardboard, newspaper, and tires. A recycling contractor empties recycling containers on a regular schedule and recycles the collected materials.

Reduction of hazardous material use at USAF installations is normally achieved through the implementation of a hazardous materials pharmacy (HAZMART), a centralized location for inventory, control, and distribution of hazardous materials to authorized shops. Buckley AFB has a “virtual” HAZMART, meaning that the installation does not distribute hazardous materials from a central location, but instead tracks and controls use through a computerized tracking system. Reduction efforts focus on the “EPA 17” industrial toxics; seventeen compounds prioritized by USEPA for reduction due to particularly high associated environmental and human health hazards. Various initiatives are used to reduce use, including control of use through the

SECTION THREE **Affected Environment and Environmental Consequences**

chemical authorization process, limits on quantities distributed, and substitution of non-hazardous products. ODS' are also targeted for reduced use or substitution under AFI 32-7086.

Green Procurement is the USAF initiative established to comply with federal Affirmative Procurement requirements. Green Procurement seeks to direct USAF purchasing power toward the procurement of high recycled-content goods, Energy Star® and energy-efficient products, energy-efficient standby power devices, alternative fuel vehicles/alternative fuels, bio-based products, non-ODS, and EPA Priority Chemicals.

The USAF P2 and Solid Waste Programs facilitate the reduction of solid waste (both hazardous and non-hazardous) through adjustments to the behaviors and work practices of facility personnel. The mission at Buckley AFB demands a variety of industrial and non-industrial facilities and processes. The P2 and Solid Waste Management Programs impact all of these, and would have impacts on operations at any new facilities constructed at Buckley AFB. New facilities would be required to participate in the same USAF P2 and solid waste management activities as similar existing facilities.

3.10.2 Impacts

Proposed Action

Building construction and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period. Certain forms of construction-related solid waste might be eligible for diversion to recycling. Construction contractors should attempt to recycle waste materials for which a market exists, procure materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is limited to replacing facilities that are scattered in different locations at Buckley AFB with little or no change to existing personnel and operations, no major changes to P2 initiatives or solid waste generation are anticipated following construction of the Proposed Action.

No Action Alternative

Under the No Action Alternative solid waste generation at Buckley AFB would not increase. Buckley AFB P2 solid waste management would be unaffected.

Alternative 1

Impacts from Alternative 1 would be the same as the Proposed Action.

Alternative 2

Impacts from Alternative 2 would be the same as the Proposed Action.

SECTION THREE **Affected Environment and Environmental Consequences**

3.11 TRANSPORTATION

This section presents information regarding traffic flow within Buckley AFB.

3.11.1 Affected Environment

Buckley AFB is situated within the Denver metropolitan area (Figure 1-1). Three major arterial routes surround Denver, including I-25, I-70, and I-76. A north-south trending road, I-225, runs between and connects I-25 and I-70. In addition, E-470, a toll road that runs north-south near the eastern boundary of Buckley AFB, provides an alternate beltway route around the eastern half of the Denver metropolitan area. Intersecting with I-225 running east-west are two major arteries, 6th Avenue and Mississippi Avenue; E-470 also provides access to these streets. Access to Buckley AFB is available via gates at the intersections of Aspen Street and 6th Avenue (North Gate), Aspen Street and Mississippi Avenue (South Gate), 6th Avenue and Telluride Avenue (Telluride Gate), and 6th Avenue and Piccadilly Street (East Gate). Traffic through the Telluride Gate is primarily Base Exchange/ Commissary traffic, while munitions traffic enters the base through the East Gate. Aspen Street is a four-lane, divided street running north to south from the North Gate to the South Gate. All vehicles entering and departing the installation must use Aspen Street. Breckenridge and Steamboat avenues distribute traffic from Aspen Street to the major industrial and flightline areas.

Proposed Action

The primary point of egress under the Proposed Action would occur from two parking lots located on the east and west sides of the facility along A-Basin Road, a two-lane asphalt roadway. This street provides the only access to the proposed site from the main base.

No Action Alternative

Traffic flows would be unchanged as a result of the No Action Alternative.

Alternative 1

The primary point of egress under Alternative 1 would be from Beaver Creek Street.

Alternative 2

The primary point of egress under Alternative 2 would be from Aspen Way.

3.11.2 Impacts

Proposed Action

Accessing the Proposed Action location would redirect traffic from the scattered locations throughout Buckley AFB to one central location. No new employees are expected to be brought onto base to staff the proposed facility, as staff would move from existing facilities. Although traffic loads may increase slightly during construction, there would be no major changes to the existing traffic patterns. The volume and capacity of traffic is expected to increase minimally

SECTION THREE Affected Environment and Environmental Consequences

with the addition of the new facility. However, since the area surrounding the facility is being developed with the Child Development Center, Chapel, Youth Center, and mini-mall, the impact is expected to be more cumulative. Therefore, changes to traffic patterns are expected to be minimal and changes to volume and capacity are expected to be moderate.

No Action Alternative

Traffic flows would be unchanged as a result of the No Action Alternative.

Alternative 1

Accessing the Alternative 1 site would redirect traffic from the existing scattered locations on base to the Alternative 1 location off of Beaver Creek Street. However, the number of people accessing the site daily would have a minimal impact on traffic flow. Although traffic loads may increase slightly during construction, changes would be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, transportation impacts as a result of Alternative 1 are expected to be minimal.

Alternative 2

Impacts from Alternative 2 would be the same as those listed for Alternative 1.

3.12 UTILITIES

3.12.1 Affected Environment

Public providers supply water, gas, and electrical power to Buckley AFB. Since 2001, Buckley AFB has been proactive in increasing the capacity of its infrastructure systems.

Water System

Potable water is provided by the city of Aurora directly to Buckley AFB facilities without supplementary treatment. There are two connections to the city pipelines: (1) along 6th Avenue, a water main connects to a line that provides the primary source of potable water to the installation; and (2) along Mississippi Avenue, a water main provides emergency backup should the water main on 6th Avenue fail. There are no contractual limits on the amount of water the installation may use (Buckley AFB 2005a).

Sanitary Sewer

Wastewater flow from Buckley AFB is conveyed through an on-base sanitary sewer system to the city of Aurora's wastewater collection system, and then to one of two wastewater treatment facilities. The majority of the installation's sanitary sewer system is composed of vitrified clay pipe, which was installed in the 1940s and 1950s. The more recently installed sections of sewer main are polyvinyl chloride pipe, which is now used for all sewer upgrades on the installation (Buckley AFB 2005a). The wastewater is primarily directed to and treated at the Metro

SECTION THREE **Affected Environment and Environmental Consequences**

Wastewater Reclamation District, located at 64th Avenue and York Street. The city of Aurora's total flow contribution to this treatment facility ranges between 18 and 20 million gallons per day. The other treatment facility, the Sand Creek Treatment Facility, is owned and operated by the city of Aurora and processes approximately 10 percent of Aurora's total discharge (Farrington 2005).

Storm Drainage

Stormwater is collected and transmitted through a system of surface ditches and channels. An underground storm sewer/pipeline drainage system has been installed at a number of locations including around the runway, portions of the taxiways, and the hangars and facilities north of the main ramp. These structures direct stormwater to the City of Aurora's municipal separate storm sewer system and natural drainage channels, namely Murphy Creek, Sand Creek, and East Toll Gate Creek. There are two primary drainage basins — the Sand Creek basin and the East Toll Gate Creek Basin. The dividing line between them runs roughly parallel and east of Runway 14/32 (Buckley AFB 2005a).

Electrical System and Natural Gas

Buckley AFB receives electrical power and natural gas from Xcel Energy (Buckley AFB 2005a).

3.12.2 Impacts

Issues and concerns regarding infrastructure are related to creating stress on infrastructure systems, such that the existing infrastructure must be updated or changed. Assessing impacts to infrastructure entails a determination of infrastructure that would be used as a result of the Proposed Action or action alternatives.

Proposed Action

There is a project underway (Infrastructure Phase 3 Plan) that will provide new underground utilities along A-Basin Avenue. It is anticipated that the plan will include water, sanitary, and electrical, which would serve the Proposed Action location. Electric and sanitary services run north of the site under or in close proximity to Building 304. Water service would be provided from the recently added water line located adjacent to the north of A-Basin Avenue. Natural gas is located along A-Basin Avenue. Based on information provided in the Requirements Document, the infrastructure under construction would support the development of this location. Therefore, extensions to the utility system are not required under the Proposed Action.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. Therefore, impacts to utilities are expected to be negligible as a result of the Proposed Action.

No Action Alternative

The No Action Alternative would have no impact on utilities.

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Alternative 1

Alternative 1 would have the same needs for utilities as the Proposed Action. According to utility maps in the Buckley AFB General Plan, water lines, electrical lines, and natural gas lines run parallel with Aspen Street and would have to be extended approximately 400 ft to the site. There are no sanitary sewer lines distributed within the vicinity of the Alternative 1 area, and therefore, these lines would need to be installed.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. Therefore, impacts on utilities are anticipated to be minimal as a result of the Alternative 1.

Alternative 2

Alternative 2 would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 2, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, water lines, electrical lines, and natural gas lines run parallel with Aspen Street and would have to be extended to the site. There are no sanitary sewer lines distributed within the vicinity of the Alternative 2 area, and therefore, these lines would need to be installed. When compared to the Proposed Action and Alternative 1, the utility extensions for the Alternative 2 site would require the most work because the site is located the farthest (approximately 800 ft) from existing lines.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. Therefore, impacts on utilities are anticipated to be minor as a result of the extensions required under Alternative 2.

3.13 ENVIRONMENTAL JUSTICE

EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The environmental effect of federal actions, including human health, and economic and social effects on minority communities and low-income communities, are analyzed under this regulation. The existing environmental justice conditions were analyzed using the United States Census 2000 summary data in accordance with the methods presented in the 1997 Air Force publication: “*Interim Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process*” (Air Force 1997).

Minority and low-income populations are defined as follows:

- Minority population refers to persons who are African American; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Other; and of Hispanic origin in census data and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.

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- Low-income refers to household income at or below the Department of Health and Human Services poverty guidelines or the Community Development Block Grant thresholds. Individuals falling below the poverty threshold are considered low-income individuals.

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, directs federal agencies to (1) identify and assess environmental health risks and safety risks that may disproportionately affect children, and (2) ensure that policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

3.13.1 Affected Environment

The demographic profile of Arapahoe County, Colorado, according to the United States Census Bureau 2000 is shown in Table 3-6.

Table 3-6
Racial Makeup of Arapahoe County, Colorado, 2000

Race	Percent of Population in Arapahoe County
Caucasian	79.9
Persons of Hispanic origin (of any race)	11.8
American Indian and Alaskan Native	0.7
Asian	3.9
African American	7.7
Native Hawaiian and Other Pacific Islander	0.1
Some other race	4.5
Two or more races	3.2
Total Minority Population	31.9

Source: 2000 US Census Bureau

Notes: the numbers may not add up to 100 percent because, according to the US Census Bureau, Hispanic origin is not a race, and persons of Hispanic origin may be of any race.

In 2000, Arapahoe County had a population of 487,967 that was expected to increase by approximately 7.1 percent to 522,812 in 2004.

According to the United States Census 2000, 5.8% of the Arapahoe County population lives below the 2000 poverty level of \$8,794 (for an individual) or \$13,738 (family of three) (Buckley AFB 2004a). Of the six census tracts surrounding Buckley AFB, four exceed the 5.8% poverty level mark. Analysis of the 2000 US Census Bureau data indicates that minorities constitute approximately 31.9% of the population in Arapahoe County. Analysis of the minority constituency of Arapahoe County within the six census tracts surrounding Buckley AFB determined that minorities comprised 24.7% of the six census tracts. (Buckley AFB 2004a)

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3.13.2 Impacts

Based on federal guidance, there would be adverse impacts if minority and/or low-income populations felt a disproportionate amount of the adverse effects of the actions. The ROI analyzed included Buckley AFB and areas immediately surrounding the base.

Proposed Action

Under the Proposed Action, construction of the Education Center would result in ground disturbance located entirely within the boundaries of Buckley AFB, having minimal impacts to environmental resources. Surveys have documented that there are no wetlands, threatened or endangered species, or cultural resources present in the project area. Noise and air emissions (primarily PM₁₀ and fugitive dust) would be short-term and temporary and are not expected to adversely impact any residents or workers. Standard construction practices would be implemented to minimize dust. No hazardous substances would be stored at or transported to the site. There are no surface water bodies near the site. No military family housing is currently located on Buckley AFB, although housing is under construction; therefore, no family populations on base would be impacted by the Proposed Action. Furthermore, the Proposed Action would not pose a health risk to children. Because there would be no adverse environmental impacts, there would be no disproportionately high and adverse effects on minority or low-income populations of all ages under the Proposed Action.

No Action Alternative

The No Action Alternative would not change existing conditions on Buckley AFB; therefore, there would be no disproportionate impacts to environmental justice populations and children.

Alternative 1

Impacts at the Alternative 1 location would be the same as the Proposed Action.

Alternative 2

Impacts at the Alternative 2 location would be the same as the Proposed Action.

The CEQ regulations require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “the impact on the environment which results result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial actions undertaken over a period of time by various agencies or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

4.1 IMPACT ANALYSIS

Other projects evaluated in the cumulative impact analysis include planned or reasonably foreseeable projects both on Buckley AFB and off base. Planned or reasonably foreseeable projects were identified through a review of public documents and coordination with multiple agencies, and include both on- and off-base activities.

Off-Base Activities. The land adjacent to Buckley AFB is split between developed, agricultural, and grassland conservation areas. The city of Aurora’s *2003 Comprehensive Plan* identifies three planning areas near the base, each with its own identity and planned development pattern.

Colfax Corridor East of I-225. This area is adjacent to the northern boundary of Buckley AFB. The properties along Colfax Avenue tend to include older commercial uses, while many are vacant. The Northeast Colfax Area also includes the neighborhoods that are north and south of the corridor. Strategies identified by the city of Aurora for development in this area include:

- Working to enhance open space corridors through additional dedications or other means
- Confining non-residential uses to the corridor and to planned industrial areas, with the exception of neighborhood commercial or neighborhood institutional uses
- Locating multi-family and attached housing in appropriate areas, including adjacent to major streets, similar existing housing types, and other corridor properties
- Promoting infill development in residential neighborhoods, maintaining the overall average residential density close to the current benchmarks
- Encouraging and supporting the consolidation of parcels in the corridor to allow well-planned businesses or mixed-use projects

Active development proposals within the Colfax Corridor East of I-225 include:

- Monterrey Point – an approved, but not currently constructed residential community, containing approximately 354 units located near East Colfax and Sable Road
- Colfax Mini Mall – an approved, but not currently constructed project, located on East Colfax near I-225
- Eastpark 70 – a 110-ac (44.5 ha) industrial park, currently being constructed at Smith Road and Sky Ranch
- Cottage Grove – a residential development with approximately 104 units, currently under construction at Chambers Road at East 17th Avenue

- Cadence Retail – currently under construction, located at East Colfax and Eagle

I-225 Corridor and City Area. This area is west of Buckley AFB and is associated with I-225 and the Aurora City Center. The I-225 corridor is the geographic center of the city of Aurora, and on the east side of the highway, the Aurora Mall, Aurora City Place, and Abilene power corridors comprise a regional retail location. Midway in the corridor lies the Aurora City Center, historically planned as the city’s “downtown.” Strategies identified by the city of Aurora for development in this area include:

- Continuing to work for transportation improvements including improvements to interchanges and Park-n-Ride locations
- Developing a strategy to encourage adaptive reuse of empty “big box” retail buildings
- Encouraging additional retail and medical-related office development in the corridor
- Working to expand the restaurant node at Iliff Avenue

Important development associated with the City Center includes:

- The Aurora Municipal Center (completed)
- Arapahoe County administrative annex (complete)
- New ADT company office building
- A 355-unit townhouse and elevator apartment complex (The Village)
- A 225-residential unit project (The Retreat at City Center)
- A revitalization of the Aurora Mall

Additionally, the Regional Transportation District (RTD) purchased property for and began construction on a new bus transfer facility at the City Center. The RTD plans to relocate its bus transfer facility here, and a light-rail station could be constructed in the future. Finally, a much smaller single-family housing development comprising 36.5 ac (14.8 ha) is under construction approximately 0.5 mi (0.8 km) west of Buckley AFB (460 CES/CEV 2004).

E-470 Corridor Area. This area is adjacent to the eastern and extreme southern boundary of Buckley AFB and includes the prairie areas east of the developed portion of the city where development is expected through 2020. The major feature of this area is the E-470 corridor from Denver International Airport in the north to Douglas County in the south. E-470 is a major interstate running north-south near the eastern boundary of Buckley AFB. The 1999 completion of the E-470 segment serving the Buckley AFB area, and the subsequent Jewell Avenue extension, provides the base with major highways on both its east and west sides with access to both the north and south gates. The E-470 toll road also provides a major regional beltway connecting the northern and southern limits of the metropolitan area and linking Denver International Airport with the I-25 corridor, opening significant amounts of vacant land for development. The city of Aurora *E-470 Corridor Land Use Study* identifies regional activity centers and the following theme areas within the corridor (460 CES/CEV 2004):

- Airport Corporate
- Airport Commercial/Distribution

- Regional Retail/Commercial
- Light Industrial/Flex Office
- Buckley Research and Development
- Residential
- Regional Park and Open Space
- Recreation/Entertainment

Strategies identified by the city of Aurora for development in the E-470 Corridor area include locating a major office park, retail centers, and airport-related activities in the corridor and working with the counties to ensure that critical, undeveloped enclaves of land in the corridor are annexed into Aurora. One of the more significant proposed developments within the E-470 Corridor area is the Horizon City Center, a 503-ac mixed use commercial, retail, and residential project located on the southwest corner of I-70 and E-470, within approximately 1 mi (1.6 km) of Buckley AFB.

Planned land use for the entire area abutting the eastern boundary of Buckley AFB is to incorporate the Buckley Research and Development theme. Small-scale office development is allowed to complement the Research and Development land use, and limited industrial and commercial services are permitted. Regionally, a residential development comprising 435 ac is currently under construction within 0.5 mi (0.8 km) of the southern limits of Buckley AFB. Just east of this development, a 490-ac (198-ha) residential development is also under construction (460 CES/CEV 2004).

On-Base Activities. Land use planning at Buckley AFB follows a rational and sequential decision-making process to reach a consensus for future growth while ensuring the efficient and compatible use of available land. The land use planning process establishes long-range goals and provides starting points to discuss land acquisition or disposal actions and siting of new facilities. This planning helps to define the best layout of land uses and transportation corridors to support functional effectiveness, efficiency, and compatibility. Both on- and off-base factors are considered. Land use planning guides infill development on currently vacant land, functional consolidation, and redesignation of land uses to accommodate doubling of the base's current population (460 CES/CEV 2004).

There are several existing and planned Capital Improvement Projects to support Buckley AFB's recent transition from an ANG base to an AFB and to facilitate future growth (BAFB 2002). Currently, military family housing is being constructed on base. In November 2003, Buckley AFB completed an EA on the third phase of a four-phase, multiyear infrastructure upgrade and expansion program. Proposed activities included upgrades to the base's natural gas and electrical distribution systems, water and wastewater systems, and the roadway and circulation system. Other activities scheduled for 2004 included 13 projects totaling approximately 999,000 sq ft (92,810 sq m). These projects include adding to or altering access roads to the airfield and repairing parking lots. Activities scheduled for 2005 include 16 projects totaling approximately 380,000 sq ft (35,303 sq m). These projects include athletic fields, Army Aviation Support Facility, and Vail Street improvements. Activities scheduled for 2006 include an addition or alteration to the existing Communication Center, a youth center, a Consolidated Services Facility, and a Leadership Development Center. Projects scheduled for 2007 include a

Consolidated Fuels Facility, Logistics Readiness Facility, and Visitor Quarters. ANG projects scheduled for 2007 include a Taxiway Arm and Disarm, Alert Crew Quarters, an addition or alternation to the existing fire station, and replacement of the existing Squadron Operation Facility.

Table 4-1 summarizes potential cumulative effects on resources from the Proposed Action to construct and operate an Education Center at Buckley AFB, when combined with other past, present, and future activities. As indicated in Table 4-1, significant impacts to resources are not expected from the proposed projects.

Table 4-1
Cumulative Effects on Resources

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Land Use	Development of Aurora and Buckley AFB has extensively modified land use.	Military installations, commercial, residential, light industrial land uses.	Change from industrial to community service purposes, which conforms with the Buckley AFB General Plan.	Expansion of the city of Aurora located east of Buckley AFB	Changes to existing land use would have negligible effect on base or non-military lands surrounding Buckley AFB.
Socioeconomics	Buckley AFB contributes to the local economic community.	Support of local economic community will be continued.	Minor contribution to local construction industry.	Continued development of Buckley AFB would impact local economy and services.	Minor stimulation of local economy, including schools and housing, in context of increased development of Buckley AFB.
Air Quality	Non-attainment area for CO and maintenance area for O ₃ and PM ₁₀ .	Emissions from aircraft, vehicles, and buildings.	Potential dust emissions during soil removal, site grading and construction, and increased vehicle traffic.	Growth at Buckley AFB and Aurora will result in increased traffic and emissions.	Continued maintenance area for CO, O ₃ and PM ₁₀ . Minor effect.
Noise	Aircraft activities are a dominant noise source.	Aircraft activities are a dominant noise source.	Short-term noise from construction activities.	Base growth will result in increased traffic and noise.	Aircraft activities would be dominant noise source. Negligible effect.
Soils	Past urban and Buckley AFB development has modified soils.	None.	Grading, excavating, and soil recontouring would result in further soil disturbance.	Continued development of Buckley AFB would locally impact soils.	Impacts would be permanent but localized. Negligible effect.

Table 4-1
Cumulative Effects on Resources

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Water Resources	Surface water quality moderately impacted by development and past disposal practices.	Surface water quality moderately impacted by development.	Potential sedimentation from construction and increase in impervious surface area.	Continued development of Buckley AFB would result in sedimentation from construction and increase in impervious surface areas.	Increased impervious area would have minor impacts on storm water discharges and water quality.
Biological Resources	Degraded historic habitat of sensitive and common wildlife species.	Buckley AFB and Aurora operations and development impact wildlife and their habitat.	Minor disturbance of vegetation by construction (approximately 2.9 ac [1.2 ha]). Permanent loss of black-tailed prairie dogs and their habitat.	Continued development of Buckley AFB would impact vegetation communities and wildlife habitat.	Permanent loss of vegetation and low-quality habitat. Permanent loss of Black-tailed prairie dogs and their habitat. Minor effect.
Hazardous Materials and Waste				Continued development of Buckley AFB would incur use or generation of hazardous materials and wastes.	Negligible effect since all hazardous materials and wastes used or generated during project implementation would be used and disposed of according to all applicable regulations.
Solid Waste and Pollution Prevention			No major changes to P2 initiatives or solid waste generation are anticipated following construction activities.		
Transportation			Consistent with Buckley AFB General Plan, thus, negligible impact to current or planned activities on base or in Aurora due to changing traffic patterns, capacity, and volume.	Continued development of Buckley AFB and Aurora would result in increased traffic.	Increased traffic would have minor impact on transportation network. Negligible effect.

Table 4-1
Cumulative Effects on Resources

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Utilities			No upgrades are expected to be needed for potable water, electric, natural gas, and sanitary networks. No adverse impacts are anticipated on utilities.	Continued development of Buckley AFB and Aurora would result in a continued increase in utility demands.	Increased demand for public utility services would not be a major impact to regional or local energy supplies.
Environmental Justice	Past impacts to Environmental Justice populations have been dependent on resource areas impacted by past projects.		No adverse impacts are anticipated to low-income or minority populations.	No adverse impacts are anticipated to low-income or minority populations.	No adverse impacts are anticipated to low-income or minority populations.

SECTION FIVE

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This EA has been prepared under the direction of DoD and Buckley AFB. The individuals who contributed to the preparation of this document are listed below.

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Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, CO 80222

Jerry Craig
Colorado Department of Wildlife
Wildlife Research Center
317 West Prospect Road
Ft. Collins, CO 80526

SECTION SIX

Distribution List and Agencies and Individuals Contacted

Denver Public Library
Government Documents Section
10 West 14th Avenue
Denver, CO 80204

University Government Public Library
Campus Box 184
Boulder, CO 80309-0184

Aurora Central Library
14949 East Alameda Drive
Aurora, CO 80012

40 CFR 93.153(b) – These limits are applicable to non-attainment and maintenance areas, and therefore, apply to Buckley AFB.

460 CES/CEV. 2004. Environmental Assessment of the Proposed Denver Security Operations Center (DSOC) “Center of Excellence.” July 2004.

460 Space Wing. 2004 Annual Economic Impact. September 2004.

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Buckley Air Force Base (Buckley AFB). 2005a. General Plan at Buckley AFB by HB&A. November 2002, revised October 2005.

Buckley Air Force Base (Buckley AFB). 2005b. Calendar Year 2004 Air Emission Inventory, Buckley Air Force Base, April 2005.

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Colorado Air Quality Control Commission (CAQCC). 2004. Early Action Compact Ozone Action Plan Proposed Revision to the State Implementation Plan. March 12.

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- GeoMarine Inc. 2004. *Historic Building Inventory and Evaluation and Historic Landscape/Viewshed Evaluation Buckley Air Force Base*. June.
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- U.S. Census Bureau. 2000. *2000 Census*.
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Appendix A
Air Force Form 813s

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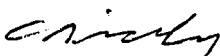
REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
CRWU073003

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on Separate Sheets as necessary. Reference appropriate item number(s).

SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
460 CES/CEV	460 CES/CECP	303-677-6819
3. TITLE OF PROPOSED ACTION Education Center		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date). Construct a 22,012 SF Education Center. The facility is required to provide a properly configured and sized facility for academic and professional military education of the active duty military and DoD civilians. The project is required to consolidate functions that are now housed in building 606 and 950. Building 950 is within the clear zone and is scheduled to be demolished as part of another project.		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPPA) (Provide sufficient details for evaluation of the total action). See attached		

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE
Charles Nicely, GS-11		16 Jan 04

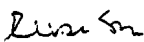
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = Unknown effect.

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (emissions, attainment status, state implementation plan, etc.) Fugitive dust during construction.			X	
9. WATER RESOURCES (Quality, quantity, source, etc.) Stormwater during and after construction			X	
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.) Safety During construction			X	
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.) Use of hazardous materials during construction.			X	
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.) Potential adverse effects to prairie dogs and/or burrowing owls.			X	
13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.) Assuming the additional employees currently reside in the local commuting area.		X		
16. OTHER (Potential impacts not addressed above.)		X		

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17	<input type="checkbox"/>	PROPOSED ACTION QUALIFIES FOR A CATEGORICAL EXCLUSION (CATEX #) _____: OR
	<input checked="" type="checkbox"/>	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19a. SIGNATURE	19b. DATE
Elise L. Sherva, GS-12		2 1/04

Appendix B
Notice of Availability and Affidavit of Publication

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THE Denver Newspaper Agency
DENVER, CO

PUBLISHER'S AFFIDAVIT

City and County of Denver,
STATE OF COLORADO, SS.

Diane Trujillo

..... being of lawful
age and being first duly sworn upon oath, deposes and says:

Legal Advertising Reviewer

That he/she is the
Of The Denver Newspaper Agency, publisher of the Denver Post and
Rocky Mountain News, daily newspapers of general Circulation published
and printed in whole or in part in Denver, in the County of Denver and
State of Colorado, and that said newspaper was Prior to and during
all the time hereinafter mentioned duly qualified For the publication of
legal notices and advertisements within the Meaning of an Act of the
General Assembly of the State of Colorado,
Approved April 7, 1921, as amended and approved March 30, 1923;
And as amended and approved March 5, 1935, entitled "An Act
Concerning Legal Notices, Advertisements and Publications and the
Fees of printers and publishers thereof, and to repeal all acts and parts
Of acts in conflict with the provision of this Act" and amendments
Thereeto:

That the notice, of which the annexed is a true copy, was published in
The said newspaper to wit: (dates of publication)

May 14, 2006

Diane Trujillo
.....
Signature

Subscribed and sworn to before me this *15* day

Of ... May ... A.D. 2006.

Susan Sloan
.....
Notary Public.

My commission expires *8/15/06*



Notice Of Availability for Education Center Environmental Assessment at Buckley AFB

Interested parties are hereby notified that Buckley Air Force Base (BAFB) has prepared a Draft Environmental Assessment (EA) and a Draft Finding of No Significant Impact for the proposed construction and operation of an Education Center.

Statutory Authority. This notice is being issued to interested parties in accordance with the National Environmental Policy Act (Public Law (PL) 91-190, 42 United States Code 4321 et seq.) as amended in 1975 by PL 94-52 and PL 94-83.

Purpose. The purpose of this project is to provide sufficient space for educational programs at Buckley AFB. Section C, 15.3 - Category Code 730-441, "Education Center" in Air Force Handbook 32-1084 "Facilities Requirements" states that education centers shall make use of joint facilities. Therefore, this project is needed to provide a joint facility for education programs at Buckley AFB per Air Force policy.

In addition to the Proposed Action, a No-Action Alternative and two alternative locations for the Education Center on Buckley AFB were considered and evaluated in the EA. The proposed facility functions would remain the same under each action alternative.

Comments. Comments on the Draft EA should be directed to Mr. Bruce James, 460 CES/CEV, 660 S. Aspen Street (Stop 85), Bldg. 1005, Room 178, Buckley AFB, Colorado 80011-9331, (720) 847-7245. The comment period is open for 30 days from 15 May 06, following the publication of this notice in a general circulation newspaper. Copies of the Draft EA are available for review by the public at the Aurora Central Library 14949 E. Alameda Drive, Aurora, Colorado 80012; Denver Public Library, Government Documents Section, 10 West 14th Avenue, Denver, Colorado 80204; and the Boulder Public Library 1000 Canyon Blvd., Boulder, Colorado 80302. Copies may also be obtained by writing to BAFB at the address listed above.

**AURORA SENTINEL
PROOF OF PUBLICATION**

**STATE OF COLORADO
COUNTY OF ARAPAHOE Jss.**

I HARRISON COCHRAN, do solemnly swear that I am the PUBLISHER of the AURORA SENTINEL; that the same is a weekly newspaper published in the County of Arapahoe, State of Colorado and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Arapahoe for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 30, 1923, entitled "Legal Notices and Advertisements", or any amendments thereof, and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the period of 1 consecutive insertions; and that the first publication of said notice was in the issue of said newspaper dated May 18 A.D. 2006 and that the last publication of said notice was in the issue of said newspaper dated May 18 A.D. 2006.

In witness whereof I have hereunto set my hand this 18 day of May.

[Signature]
Subscribed and sworn to before me, a notary public in the County of Arapahoe, State of Colorado, this 18 day of May A.D. 2006.

[Signature]
Notary Public
My Commission expires November 26, 2009

**NOTICE Of Availability for Education
Center Environmental Assessment
at Buckley AFB**

Interested parties are hereby notified that Buckley Air Force Base (BAFB) has prepared a Draft Environmental Assessment (EA) and a Draft Finding of No Significant Impact for the proposed construction and operation of an Education Center.

Statutory Authority. This notice is being issued to interested parties in accordance with the National Environmental Policy Act (Public Law [PL] 91-190, 42 United States Code 4321 et seq.) as amended in 1975 by PL 94-52 and PL 94-83.

Purpose. The purpose of this project is to provide sufficient space for educational programs at Buckley AFB. Section C, 15.3 - Category Code 730-441, Education Center" in Air Force Handbook 32-1094 "Facilities Requirements" states that education centers shall make use of joint facilities. Therefore, this project is needed to provide a joint facility for education programs at Buckley AFB per Air Force policy.

In addition to the Proposed Action, a No-Action Alternative and two alternative locations for the Education Center on Buckley AFB were considered and evaluated in the EA. The proposed facility functions would remain the same under each action alternative.

Comments. Comments on the Draft EA should be directed to Ms. Janet Wade, 460 CES/CEV, 660 S. Aspen Street (Stop 86), Bldg. 1005, Room 254, BAFB, Colorado 80011-9551 (720) 847-9977. The comment period is open for 30 days from <<INSERT DATE>>, following the publication of this notice in a general circulation newspaper. Copies of the Draft EA are available for review by the public at the Aurora Central Library 14949 E. Alameda Drive, Aurora, Colorado 80012; Denver Public Library, Government Documents Section, 10 West 14th Avenue, Denver, Colorado 80204; and the Boulder Public Library 1000 Canyon Blvd., Boulder, Colorado 80302. Copies may also be obtained by writing to BAFB at the address listed above.

Publication: May 18, 2006
Aurora Sentinel

Appendix C
Interagency Coordination Letters

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 10 2006

RE: Draft Environmental Assessment for the Proposed Construction of an Education Center and
a Draft Environmental Assessment for the Proposed Security Forces Operations Facility at
Buckley Air Force Base, Colorado

Dear CAG Member

This letter is to inform you of the availability of the above-mentioned draft environmental assessments for activities at Buckley Air Force Base. The draft environmental assessments will be available for public viewing from 15 May 2006 to 15 June 2006 at the Aurora Central Library located at 14949 East Alameda Drive, Aurora, Colorado, the CU-Boulder University Government Public Library, 1770 Pleasant Street, Boulder, CO 80309 and at the Denver Public Library, Government Documents Section, located at 10 West 14th Avenue, Denver, Colorado. If you have any questions or comments please direct them to:

Mr. Bruce James
460 CES/CEVP
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551
720-847-9077
Email bruce.james@buckley.af.mil.

Comments must be received by Monday, June 19, 2006.

Sincerely,

MR BRUCE R. JAMES
Chief, Environmental Planning

STATE OF COLORADO

Bill Owens, Governor
Dennis E. Ellis, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

June 13, 2006

Mr. Bruce James
460 CES/EVP
660 South Aspen Street, Stop 86
Buckley AFB, CO 80011-9551

Dear Mr. James:

RE: Draft Environmental Assessments for Education Center and for Proposed Security Forces Operations Facility, Buckley Air Force base, Colorado dated March 2006

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) has reviewed the above referenced documents received May 16, 2006. The Division has the following general comments on the Environmental Assessments (EA):

The Air Force Environmental Restoration Program is conducting a base-wide preliminary assessment, which may discover other environmental concerns not previously identified at the base, potentially in areas proposed for construction.

Education Center – The EA states that asbestos in soil is not a concern for the proposed action based on samples collected in the area. These sample results have not been provided for review. Regardless, the CDPHE has promulgated new asbestos regulations under our Solid Waste Regulations at 6 CCR 1007-2, Part 1, Section 5.5, which would have to be followed in the event asbestos is discovered during construction.

Security Forces Operations Facility – The CDPHE has promulgated new asbestos regulations under our Solid Waste Regulations at 6 CCR 1007-2, Part 1, Section 5.5, which would have to be followed in the event asbestos is discovered during construction.

Thank you for the opportunity to comment. Please contact me at 303-692-3324 or ed.larock@state.co.us if there are any questions.

Mr. Bruce James
June 13, 2006
Page 2

Sincerely,

A handwritten signature in dark ink, appearing to read "Ed LaRock", followed by a long horizontal flourish.

Ed LaRock, P.G.
Environmental Protection Specialist
Hazardous Materials and Waste
Management Division

cc: Richard Lotz, AGO
Monica Sheets, CDPHE
David Rathke, EPA Region 8
File RD003-1.1



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

29 2006

Mr. Bruce James
460th Civil Engineer Squadron
Environmental Flight
660 South Aspen Street, Stop 86
Buckley AFB CO 80011-9551

Mr. Ed LaRock, P.G.
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive, South
Denver, CO 80246-1530

Dear Mr. LaRock

Thank you for your letter, dated 13 Jun 06, on the Environmental Assessments (EA) and Finding of No Significant Impacts (FONSIs) for both the proposed Education Center and the proposed Security Forces Operations Facility at Buckley AFB. We appreciate your comments regarding new asbestos regulations under the Solid Waste Regulations at 6 CCR 1007-2. As noted in the draft EA, Buckley AFB will comply with all applicable federal and state regulations.

If you have any further questions, please contact me at 720-847-7245, email bruce.james@buckley.af.mil.

Sincerely,


BRUCE R. JAMES, GS-12
Chief, Environmental Planning



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Librarian
Aurora Central Library
14949 East Alameda Drive
Aurora, Colorado 80012

RE: Draft Environmental Assessment for the Proposed Construction of an Education Center at
Buckley Air Force Base, Colorado

Dear Librarian:

Please find enclosed a copy of the Draft Environmental Assessment prepared for the proposed construction and operation of an Education Center at Buckley Air Force Base, Colorado. A notice of availability for this document has been published by the Denver Newspaper Agency in the local Denver newspapers. Please make this document available for public review from 15 May to 15 June 2006.

Please contact me at 720/847-7245 or via e-mail at bruce.james@buckley.af.mil with any questions. Thank you in advance for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Bruce R. James".

MR BRUCE R. JAMES
Chief, Environmental Planning
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

Enclosures (1)



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Librarian
Denver Public Library
Government Documents Section
10 West 14th Ave.
Denver, Colorado 80204

RE: Draft Environmental Assessment for the Proposed Construction of an Education Center at
Buckley Air Force Base, Colorado

Dear Librarian:

Please find enclosed a copy of the Draft Environmental Assessment prepared for the proposed construction and operation of an Education Center at Buckley Air Force Base, Colorado. A notice of availability for this document has been published by the Denver Newspaper Agency in the local Denver newspapers. Please make this document available for public review from 15 May to 15 June 2006.

Please contact me at 720/847-7245 or via e-mail at bruce.james@buckley.af.mil with any questions. Thank you in advance for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Bruce R. James".

MR BRUCE R. JAMES
Chief, Environmental Planning
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

Enclosures (1)



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Librarian
University Government Public Library
Campus Box 184
Boulder, CO 80309-0184

RE: Draft Environmental Assessments for the Proposed Construction of an Education Center at
Buckley Air Force Base, Colorado

Dear Librarian:

Please find enclosed a copy of the Draft Environmental Assessment prepared for the proposed construction and operation of an Education Center at Buckley Air Force Base, Colorado. A notice of availability for this document has been published by the Denver Newspaper Agency in the local Denver newspapers. Please make this document available for public review from 15 May to 15 June 2006.

Please contact me at 720/847-7245 or via e-mail at bruce.james@buckley.af.mil with any questions. Thank you in advance for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Bruce R. James".

MR BRUCE R. JAMES
Chief, Environmental Planning
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

Enclosures (1)



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

NOV 16 2005

Janet Wade
460th Civil Engineer Squadron
660 South Aspen Street, Stop 86
Buckley AFB CO 80011-9551

Georgianna Contiguglia
State Historic Preservation Officer
Colorado History Museum
1300 Broadway
Denver CO 80203-2137

Dear Ms. Contiguglia

The Air Force is preparing an Environmental Assessment for the construction and operation of a Base Education Center. The proposed action analyzed in the Education Center Environmental Assessment (EA) is to construct and operate an Education Center at Buckley Air Force Base (AFB) planned for Fiscal Year 2008. Under the No Action Alternative, the Education Center would not be built. Without a centralized base Education Center, active-duty, full-time Guard and Reserve, and DoD civilian personnel would not have a facility designed to house the current needs. The base education office personnel would work out of the existing substandard administrative space. No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need. A figure that shows the proposed action and alternative locations is attached.

In compliance with Section 106 of the National Historic Preservation Act, Buckley Air Force Base has determined that the proposed action, and alternatives, would not have an adverse affect on historic properties. Cultural resources on Buckley AFB have been inventoried and analyzed for historic significance (Historic Building Inventory and Evaluation dated June 2004). There are no known archaeological or historic structure resources in, or near, the proposed sites. Building information, with the dates of construction in parenthesis, is outlined below.

Proposed Action Site:

- Building 300 (5AH2285) (1978), 302 (5AH2285) (1988), 306 (1994), 310 (1994), 340 (1994), 341 (1994), 344 (1996), 606 (2000), and 605 (protable building) were constructed after 1970. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Alternative #1

- Buildings 805 and 806 (1996) were constructed or in place after 1990. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Alternative #2:

- Building 1011 (5AH1528): Was determined to be ineligible for inclusion on the National Register of Historic Places per formal consultation with your office and has been demolished.
- Building 1012 (5AH2317)(1967): Sanitary Latrine, was determined to be ineligible for listing on the National Register of Historic Places and has been demolished.

Please provide written comments and/or concurrence to:

Floyd W. Hatch
460 CES/CEVP
660 S. Aspen Street, Mail Stop 86
Buckley AFB CO 80011-9551

If you have any questions please feel free to contact Mr. Floyd Hatch, Cultural Resources Manager 720-847-6937, email floyd.hatch@buckley.af.mil or Ms. Janet Wade, Environmental Flight Chief at 720-847-9977, email janet.wade@buckley.af.mil.

Sincerely


JANET L. WADE, GS-13
Chief, Environmental Flight

Attachment
Location figure



COLORADO HISTORICAL SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

November 21, 2005

Janet L. Wade
Chief, Environmental Flight
460th Civil Engineer Squadron
660 South Aspen Street, Stop 86
Buckley AFB, CO. 80011-9551

Re: Environmental Assessment for the Construction and Operation of a Base Education Center. (CHS #46780)

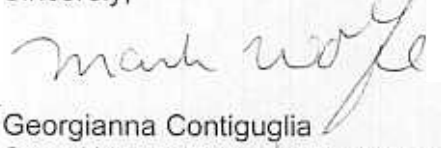
Dear Ms. Wade:

Thank you for your correspondence dated November 16, 2005 and received by our office on November 17, 2005 regarding the above-mentioned project.

After review of the submitted information, we concur with the finding of *no adverse effect* under Section 106 of the National Historic Preservation Act [36 CFR 800.5(b)] in regards to the proposed project. If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CFR 60.4, in consultation with this office.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,


for Georgianna Contiguglia
State Historic Preservation Officer

cc: Floyd Hatch/Buckley AFB

MAY 12 2006



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Bruce Rosenlund
Colorado Field Supervisor
U.S. Fish and Wildlife Service
755 Parfet Street, Suite 496
Lakewood CO 80215

Dear Mr. Rosenlund

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. We have assessed the potential environmental effects of the Security Forces Operations Facility and determined that the proposed actions are not likely to adversely affect federally listed and candidate species. We are requesting initiation of Section 7 consultation per the Endangered Species Act. The Draft EA and Draft FONSI are attached for your information, review, and comment.

The public comment period for this EA is 30 days. Please provide any written comments to:

Mr. Bruce James
460 CES/CEVP
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

If you have any questions please feel free to contact Mr. Bruce James, Chief, Environmental Planning at 720-847-9077, Email bruce.james@buckley.af.mil.


BRUCE R JAMES
Chief, Environmental Planning

2 Attachments
Draft EA
Draft FONSI



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Eugene Jansak
Industrial Waste Specialist
Metro Wastewater Reclamation District
6450 York Street
Denver CO 80229-7499

Dear Mr. Jansak

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

The public comment period for this EA is 30 days. Please provide any written comments to:

Mr. Bruce James
460 CES/CEVP
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

If you have any questions please feel free to contact Mr. Bruce James, Chief, Environmental Planning at 720-847-9077, Email bruce.james@buckley.af.mil.


BRUCE R JAMES
Chief, Environmental Planning

2 Attachments
Draft EA
Draft FONSI

MAY 12 2006



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Eliza Moore
Wildlife Manager
Colorado Division of Wildlife
6060 South Broadway
Denver CO 80216

Dear Ms. Moore

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

The public comment period for this EA is 30 days. Please provide any written comments to:

Mr. Bruce James
460 CES/CEVP
660 South Aspen Street Stop 86
Buckley AFB CO 80011-9551

If you have any questions please feel free to contact Mr. Bruce James, Chief, Environmental Planning at 720-847-9077, Email bruce.james@buckley.af.mil.


BRUCE R JAMES
Chief, Environmental Planning

2 Attachments
Draft EA
Draft FONSI

MAY 12 2006



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Patricia Mehlhop
U.S. Fish and Wildlife Service
PO Box 25486
Denver CO 80225-0486

Dear Ms. Mehlhop

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

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Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
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Jerry Craig
Wildlife Researcher
Colorado Division of Wildlife
Wildlife Research Center
317 W. Prospect Road
Fort Collins CO 80526

Dear Mr. Craig

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
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Larry Svoboda
NEPA Unit Chief
U.S. Environmental Protection Agency, Region 8
999 18th Street, Suite 500
Denver CO 80202

Dear Mr. Svoboda

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

David Rathke
U.S. Environmental Protection Agency, Region 8
999 18th Street, Suite 500
Denver CO 80202

Dear Mr Rathke

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Robert Watkins
Director of Planning
City of Aurora
15151 E. Alameda
Aurora CO 80012

Dear Mr. Watkins

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Ed LaRock
Federal Facilities HMWM 2800
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive, South
Denver CO 80246-1530

Dear Mr. LaRock

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

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660 South Aspen Street Stop 86
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BRUCE R JAMES
Chief, Environmental Planning

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MAY 12 2008



DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Nancy Chick
Air Pollution Control Division
Colorado Department of Public Health and Environment
APCD-TS-B24300
Cherry Creek Drive, South
Denver CO 80246-1530

Dear Ms. Chick

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct an Education Center at Buckley Air Force Base (AFB). The proposed action is part of the 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB. The Proposed Education Center Project is required to support the 460th Space Wing mission and improve quality of life for on-site, off-site, and retired personnel. The Draft EA and Draft FONSI are attached for your information, review, and comment.

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Dan Beley
Colorado Department of Public Health and Environment
Water Quality Control Division
4300 Cherry Creek Drive, South
WQCD-OA-B2
Denver CO 80246-1530

Dear Mr. Beley

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DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

MAY 12 2006

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Jim Paulmeno
Manager Environmental Planning
Colorado Department of Transportation
4201 East Arkansas Ave.
Denver CO 80222

Dear Mr. Paulmeno

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Mr. Bruce James
460th Civil Engineer Squadron
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Jane Hann
Environmental Project Manager
Colorado Department of Transportation
4201 East Arkansas Ave.
Denver CO 80222

Dear Ms. Hann

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460th Civil Engineer Squadron
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John Fernandez
Planning, Environmental Division
City of Aurora
15151 E. Alameda
Aurora CO 80012

Dear Mr. Fernandez

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Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Mac Callison
Planning, Traffic Division
City of Aurora
15151 E. Alameda
Aurora CO 80012

Dear Mr. Callison

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